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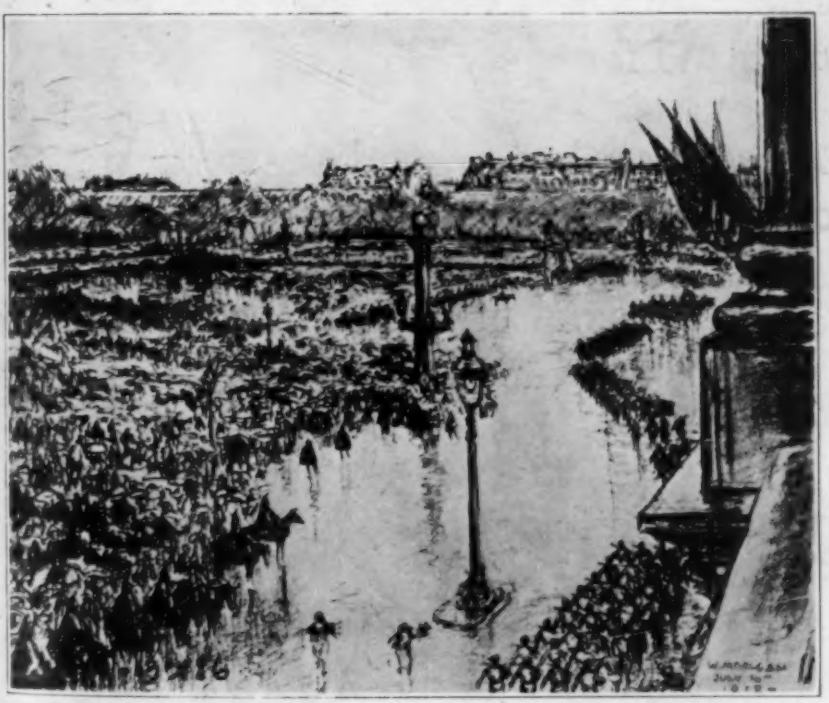

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American Troops Marching Through the Place de la Concorde, 1918

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The Doughboy—Model of 1918 and All Time

The Army Pictorial Service *Capt. Harry Townsend*

INFANTRY JOURNAL

Vol. XXXVII SEPTEMBER, 1930 No. 3

Army Publicity and the Professional Service Journals

GENERAL C. P. SUMMERALL

TRUTHFUL publicity is one of the most important missions of the Army in time of peace. This is also the case in time of war, with the difference that in peace great efforts are required to secure proper publicity, while in war publicity is automatic. The Army is an instrumentality of the government, as necessary in peace to prepare for defense as it is in war to execute the defense. During war the people understand perfectly well the mission of the Army; in peace its mission is obscure. Even the people who participated in war have become largely occupied with their own affairs and have little time to devote to thought on the military establishment.

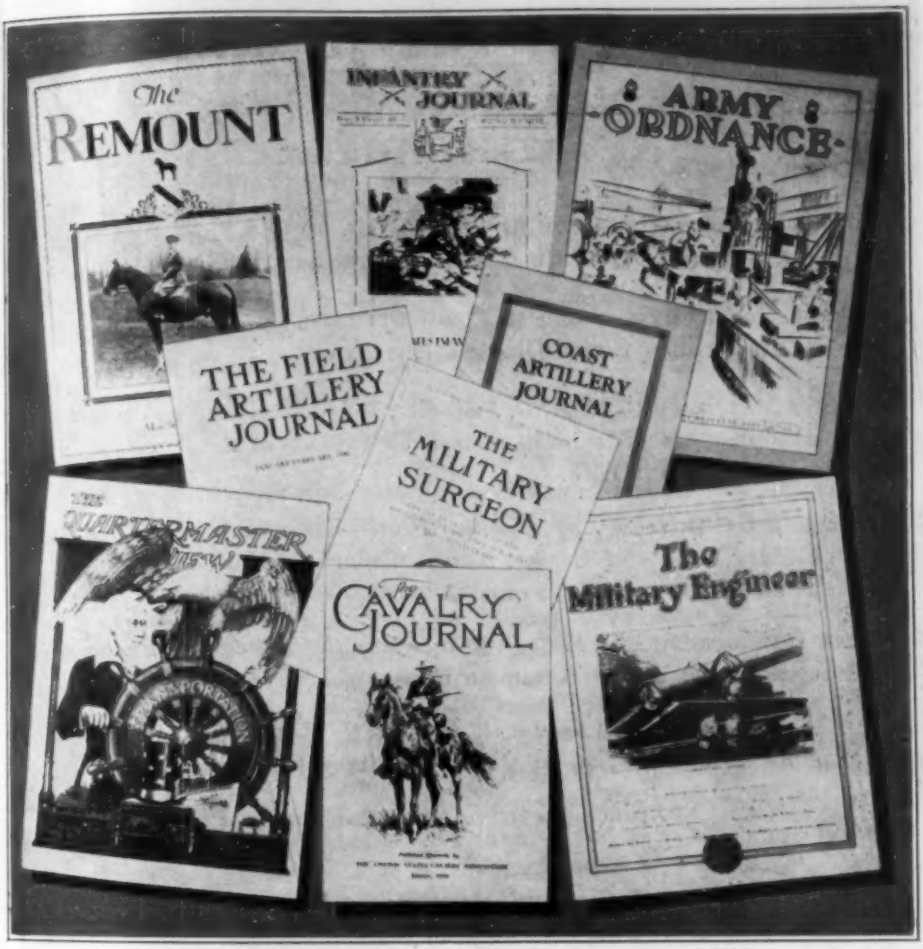
The Army depends for its existence and support upon the will of the people. The extent of their interest measures the degree of support that the Army receives. It is not fair to the Executive or to Congress to expect them to act arbitrarily in providing means for the support of the Army when the people know little about the reasons for its existence. It is one of the duties of the Army to acquaint the people with its mission and its performances in time of peace.

There has been in our Service an evident tendency for officers to avoid "bursting into print." As a result, our list of military writers who have achieved distinction is regrettably short. We still rely on British authors for standard works on Jackson, Lee, Sherman, Grant, and other outstanding American military leaders. Up to the close of the World War, our military text books were largely indebted to foreign publications for their contents. Recently, at a well known conference for the discussion of national and international questions, a distinguished foreign official was led to ask why Americans always assumed an inferiority complex when discussing their own country with foreigners. There is no reason for our officers to feel inferior; or to imply, by their silence on military subjects, undue deference to the opinions of foreign military writers. There are many subjects of immediate importance to the Army that American officers should discuss in the pages of the professional magazines of the arms and services, which we call the Service Journals. The editors of these Journals may be relied upon to protect authors and the War Department from untoward incidents that might arise from the publication of undesirable material.

The peace-time activities of the Army embrace a wide range of interesting subjects. Comparatively little of the available data on many of these subjects is confidential. The War De-

partment General Mobilization Plan, for example, is a public document; the more widely it is known in the Service and in the country, the more smoothly will it operate in a national emergency. Similarly, much information concerning the annual military budget is set forth in the volumes of hearings before the Senate and House Appropriations Committees and in the Congressional Records. It is a fallacy to charge the Army *in being* with the costs of former wars—a fact that is clearly brought out in committee hearings—and yet this information might be in a sealed book so far as the public is concerned. Enough materials exist in little known public documents to enlighten the public in an interesting and authoritative way on every phase of military activities. Little has been accomplished along this line, though many officers are well qualified to utilize this material in articles that would be most acceptable to our Service Journals.

There appears to be an idea that news consists of only such items as appear on the front pages of the metropolitan newspapers. Nothing is farther from the truth. Our Service Journals afford an excellent means of making military news available to the public. When an article appears in any of the Service Journals, it comes to the attention of publishers who are constantly on the lookout for interesting material on subjects connected with national defense. Any article that has value for their purposes receives prompt attention; it may be quoted at length or may serve as the basis for articles prepared by civilian writers. In either case, the author receives due recognition and the Army benefits by having its activities accurately portrayed. Many officers who are not directly connected with the Army's regularly established publicity agencies will find that the Service Journals afford the most convenient outlet for authoritative and interesting articles. They can thus pass on to the Service and to the public the results of their study, their thought, and their experience.

There are various sources upon which writers can draw. In the civil activities of the Secretary of War, the War Department is conducting vast projects for public improvements and construction. Work on rivers and harbors, inland waterways, flood control, the survey of the proposed Nicaraguan Canal, the operation and returns from the Panama Canal, the construction of legations and embassies abroad—these activities are scarcely known to the public. The offices of the Assistant Secretaries have ample quantities of non-confidential information on the development of aviation and on the mobilization of industry. If properly presented, this material would be of absorbing interest not only to the Army but to a great number of influential citizens. The War Department General Staff, corps area commanders, division commanders, chiefs of arms and services, the War College, the General and Special Service Schools, all have a wealth of material which would be far more useful and valuable if put into circulation. Anti-aircraft defense, reorganization of infantry units, the development of semi-automatic rifles, tanks, armored cars, all-purpose gun carriages and self-propelled gun mounts, the use of and defense against chemical agents, the National Guard, Organized Reserves, R. O. T. C., C. M. T. C., the Army school system, methods of instruction,

methods of training, and leadership, are examples of subjects on which a great deal of non-confidential data are available.

The field is open, and some of our Service Journal editors are cooperating in an effort to make it more attractive. They propose to pool all articles received and to publish those of outstanding merit in several Journals at once. Valuable articles will thus receive the wide distribution that they deserve. In producing such articles, experienced officers of high rank should set the pace. Junior officers who devote their spare time to writing will acquire professional reputation in direct proportion to the value of their contributions. Writing is hard work, because clear thinking is the basis of good writing. Many a thought that sounds plausible in oral discourse shrinks to small proportions when crystallized in writing. Moreover, the successful writer must express his thoughts clearly in plain English, and he must employ tact. A tactful writer can avoid criticizing those in authority without neutralizing the persuasive power of his own views. I consider it highly desirable that our officers develop their talents by contributing well-considered articles to the professional Service Journals.

The INFANTRY JOURNAL

For Next Month Will Bring You These Articles:

NATIONAL DEFENSE AND THE EDUCATED MAN, *by Gen. C. P. Summerall*—A message from the Chief of Staff of the Army on the R. O. T. C.

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Fighting Spirit

MAJOR GENERAL FRANK PARKER, U. S. ARMY

LET US consider the measures necessary to create in a unit the individual and collective spirit that responds whole-heartedly to the will of its commander. We shall assume that physical condition has received the attention that it must always receive as the first basis of human effort; also, that technical and material considerations become secondary for the moment, although both are essential to a proper spirit. There is a positive method of procedure for the prompt and practical development of this spirit.

There are certain principles that concern all men who engage in a common effort. Their proper application by individuals, from top to bottom of a unit, governs the quality and quantity of the efforts that the unit can make. It is a basic principle that the commander, to secure energetic support of his ideas, must have well defined ideas. The thoughts and impulses that he transmits to subordinates must burn with a fierce bright light in his own consciousness. Then, and only then, can he cause his subordinates to think with him. The commander must know what is passing in the mind of each subordinate, and by unceasing vigilance he must encourage each one to adopt a mental attitude that will insure willing and energetic support. It will be a powerful aid to his influence if subordinates have the privilege of knowing, within reason, what is passing through his mind. This is a sound principle in times of crisis. The ideal situation will surely be where commander and subordinate have nothing to conceal, one from the other, and where both have exactly the same idea and purpose in mind. This ideal situation generally exists potentially in all major matters except those which must be kept secret in the interest of operations. Simplicity, duty, and honor are the basic principles of mutual understanding. Simplicity is the means whereby all may understand; duty is but the exact standard for the proper performance of service; honor is the gospel and guide of duty.

THE DIVISION

Wars are decided by battles which, in modern warfare, may last for months. Plans of campaign are developed by movement and combat. Both of these phases usually require extraordinary efforts which increase in geometrical proportion as we descend towards the units that work under the enemy's fire. The corps is the first unit which as a rule operates continuously throughout a battle. Into the corps for a more or less brief period of time (depending on the severity of the battle) comes the division—the most important agent of combat.

As the division is the first great unit to combine the arms, its commander is the only one who is in actual personal touch with conditions attending the collaboration of the different arms in combat. Below him each subordinate sees only his special arm; above him, the corps commander is necessarily at some distance from the actual combat. The division commander sees the com-

bat, sees the troops of the several arms in action, sees the results of his orders, sees the effect of combat on his men, sees the needs of his troops. The division is therefore logically the echelon in which to develop, change, and apply combat methods. Hence it is the unit in which to study the development of fighting spirit.

UNIT SPIRIT

The entire responsibility for unit spirit rests upon the commander. As is the commander, so is the unit. He must himself be the example of the head that plans, the hand that executes, and the heart that feels. He must understand and inspire the different kinds and degrees of efforts that are essential to success—and afterwards he must remember those who gave their best efforts. From him must emanate those true qualities which are to pass through subordinate echelons until they produce the proper fiber in the private soldier. In action, the question is not, "What *can* my unit do?" but rather, "What *will* it do." When I call on it, how much will it give me of what it has? If it gives all, I am assured of serious effort; therefore, as commander, my primary mission is to develop the fighting spirit of my command. This is the great role of the unit commander—to create and maintain the spirit of his unit.

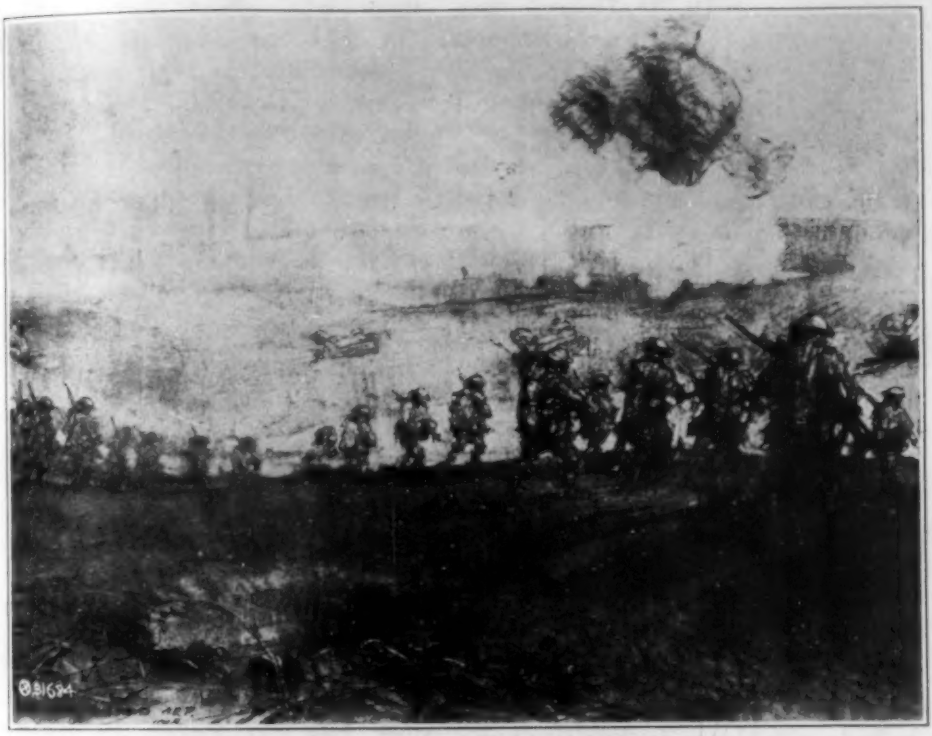
We make war primarily with men. They give the energy and efficiency to the weapons which destroy the enemy and gain the victory. Let us see how the division commander will direct their energies so that his unit will have the quality to stand the trial of combat. The development of unit spirit is essentially a matter of art, and in this phase of military preparation, art distinctly asserts itself over science. The commander's successive steps towards obtaining, or maintaining and increasing this spirit should be to acquire:

The confidence of his command;
The affection of his command;
The intense pride, built upon confidence and affection, which produces unit spirit in its highest form.

In war, especially, everything revolves about the personality of the leader. Exact standards and high ideals, set forth and maintained by work and personal example of the leader, are essential to the spiritual life of the division. Into this necessarily laborious and exacting machinery must be poured constantly the fuel of inspiration and the oil of an intense sympathy and understanding, of a constant courtesy and consideration, of a full measure of comradeship, and the unceasing application of the Golden Rule. We listen with interest to those whom we admire; but to those whom we dislike or do not admire, we pay only perfunctory attention. There is a vast difference between duty done for duty's sake or fear of punishment, and duty done for a leader respected and beloved. The great leader makes his principal appeal directly to the *heart* of his command.

DEVELOPMENT OF UNIT SPIRIT

How can the division commander effectively make this appeal? He is dealing with men—officers, noncommissioned officers, veteran soldiers, recruits—who must be made to feel and think as one about their division. The American soldier is unusually intelligent; but it requires no unusual intelligence for the last joined recruit



We Make War Primarily With Men

By Capt. Harry Townsend *Photo by Signal Corps*

to understand fairly soon the general composition of his division, and that in it:

> The commander commands;
> The staff assists him by issuing and following up his orders, but does not command;
> The troops execute the orders;
> The services supply the troops with everything they need.

Each and every member of the division must understand what his division consists of, the business of his particular unit, the general roles of the other component parts, and the general mission of the division in war. He is then in position to consider his own part as a member of the division team. This attitude on the part of the individual is the base of the system that the division commander should employ in developing the spirit of his division. When men are treated like thinking men, they generally think; treated as fools, they usually act as such.

To develop unit spirit requires a continuous and exacting vigil. The division commander, in this work, deals directly with his chief of staff, his subordinate commanders, and his chiefs of services. Each of these heads must get directly from him, orally when practicable, his doctrine of standards, ideals, and aspirations. They in turn, orally and personally, must transmit these ideas to their commands or subordinates. Without fuss or feathers, the division commander should circulate among his units while they are in training, should maintain close personal touch with the individuals of his

command and should observe them keenly. These visits, with brief talks and questions, will keep him in touch with the condition of his troops and enormously increase their spirit and his ascendency. He is here playing the role of inspector in its highest and most useful phase.

The commander is the instructor, inspector, and energizer of his command. He is essentially its morale officer. He supplies the fuel of inspiration and purpose, and above all the lubricating oil. The greatest force at the disposal of a commander for getting effort from his command is his own personal example. Loyalty, for instance, is a duty that begins with the superior. His business is to create and direct unanimity of thought and action along the general lines which concern his unit's missions, and to stimulate in his subordinate commanders the same attitude with respect to their own units —*centralization* for direction of division thought and action; *decentralization* to secure the individual effort of each component unit. These individual efforts, developed under the free initiative of each commander, are coordinated, directed, and energized along the broader lines by the next superior, successfully. Briefly, the commander must know and mind his own business, and impose exactly the same obligations upon his subordinates.

Once the commander has established his exact standards and ideals so simply and clearly that all can understand them, his next duty is to follow up closely and personally the results obtained. In so doing, he should treat subordinates with courtesy and consideration; a pat on the back is usually more effective than a kick lower down. Reprimands should be reserved for those who offend deliberately or through negligence. Subordinates read a commander like an open book, and return his feelings for them, good or bad, intensified. They soon penetrate the aura cast by insignia of high rank, and shortly estimate their commander as a man. This estimate will determine in large measure the amount of effort that he can get in response to orders or expressed desires. The commander must be the living example and apostle of exact standards, for the establishment and maintenance of which he is alone responsible. The most important instructor and inspector for a command is its own commander. His presence, voice, and example are the greatest stimulants to his troops. His principal duty is to encourage. An order given orally by the commander in person is the most efficacious form of order; it should be used whenever possible, with confirmation and elaboration in writing when necessary for the protection of all concerned. Moral and material support and non-interference are what subordinates most appreciate. They appreciate being taken into the commander's confidence by hearing from him personally, when he may properly so proceed, his plans, ideas, difficulties, efforts, and ideals. Impressions thus conveyed are indelible, they establish the commander's personality firmly in the minds of all with whom he makes contact. His command is a faithful mirror and measure of his own character and capacity.

THE TEST OF QUALITY

In formulating and transmitting his doctrine, the division commander must keep his main object constantly in mind—*to obtain the maximum coordinated effort of his command*. Logi-

Full Measure of Duty

Designed by Capt. Wallace Morgan *Photo by Signal Corps*

cally, he will seek to strengthen in due proportion the parts of the fabric where the greatest strain will occur.

As one descends in the echelons of a combat force and follows its organs of execution down to their final element, the private soldier, he finds increasing difficulties attending the proper performance of duty. This is due to the physical suffering and the danger of wounds and death—the constant companions of first line troops. Only the fool who has never been there belittles the qualities needed in this echelon, whose forward or rearward movement means exactly victory or defeat.

With this increasing difficulty of execution goes decreasing material compensation for those who do the work. The private soldier, who emerges with his life from a war in which his company has had perhaps 200 per cent of its strength killed or wounded, usually has only his service stripes, his wound chevrons (which he will not wear when he returns to civil life), and his citations (which are papers relegated as a rule to his family records). This private soldier is the logical candidate for preferential attention in matters that concern spirit. Fighting spirit will find its highest manifestation and its greatest utility in the maximum effort of the private soldier. He furnishes the surest test of the quality of his leader.

DIRECTION AND EXECUTION

An army's efficiency depends directly upon the quality of its leaders—officers and noncommissioned officers. From them the soldier receives his instruction for combat and his direction in combat. In a general way, the officers and noncommissioned officers are the elements of direction, and the private is the element of execution. To develop competent directors requires years of preparation; to accomplish material results, executors must combine with more or less training an in-

tense desire to comply energetically with the directions they receive.

Our war-time soldier, called to the colors for an emergency, has the mental attitude of a man doing necessary emergency work of a kind that is usually very distasteful to him. He performs this service with little thought of its material recompense. In training this war-time soldier, we need the shortest cut and the greatest speed for his proper military formation—physical, technical, and moral. A system that fails to stimulate and encourage to the utmost this war time soldier's personal interest in and support of his own instruction and subsequent performance of duty, is not applicable to the training of forces that we will mobilize in time of national crisis. The best system is that which most successfully appeals to his intelligence and feelings; its essential element is the firm moral support of the war time soldier himself.

Physical discipline is not sufficient in modern warfare. The necessary dispersion and heavy losses incident to combat of today frequently remove the soldier from the personal control of his leaders. Then only a properly understood and accepted doctrine of duty will hold the soldier to his course; and yet it is frequently the action of small groups of soldiers, without officers or noncommissioned officers, that determines important issues in combat.

When the battle is on, all differences in rank disappear. From the division commander directing the operation, to the private soldier executing it efficiently and energetically and risking his life in so doing, there is a team of MEN, inspired by the spirit that has put small things aside.

In the face of death, all men stand equal. Here it is not a question of rank or position, but rather that vital question, "Are you giving a full measure of duty?" If so, no man can do more; no man can play a more important role; and when the accomplishment of a mission involves death, let no man belittle the task.

In the actual hour of trial, direction and execution are equally necessary, equally important; and the more thoroughly this doctrine is understood and applied, the quicker and more complete will be the effort furnished by any given unit. The foundation of fighting spirit in any unit is the quality of its individual members, from commander to private. When they think, feel, and act in mutual confidence, sympathy, and support, the human fabric has been solidly constituted—the division belongs to that honorable company known in war as FIRST CLASS COMBAT TROOPS.

III Corps Area Command Post Exercise

Fort George G. Meade—5-19 July, 1930

COL. ARTHUR S. CONKLIN, General Staff Corps

In response to a request to Maj. Gen. Fred W. Sladen, commanding the III Corps Area, for a story of the command post exercise held at Fort George G. Meade, July 5-19, 1930, the following article, which has the approval of General Sladen, is submitted. As command post exercises are to be held annually, in succession, in the various corps areas, the extent of the exercise, its preparation and its conduct, should be of general interest to officers. The author was chief director of the exercise.

1. *War Department Directive.*

a. About January 1, 1928, the War Department announced its desire to initiate during the fiscal year 1930 an annual series of command post exercises in all corps areas for the higher instruction of general officers and their staffs. In connection therewith it announced the following:

(1) The exercises would be drawn up by the Corps Area Commander and his staff.

(2) They should be based upon suitable terrain within the corps area, and the following requirements should be fulfilled:

(a) Terrain should be adequate to the size of the forces involved.

(b) Rentals should be a minimum.

(c) There should be adequate facilities for shelter and messing of the *command, staff,* and *communication* personnel assembled therefor.

(d) Sensitive areas should be involved, if possible.

(e) An area should be selected which had suitable maps.

b. The directive also stated that the Corps Area Commander and staff, functioning as the directing staff, should draw up the problem and conduct its subsequent development, including the enemy's reaction thereto; that command post communications should be employed to the fullest extent practicable; and that one of the methods of conducting the exercise was that in which the command posts of units might be established in villages and farms at their normal distances, with practically full communications.

c. It was also directed that the Corps Area Commander make arrangements for the attendance of the National Guard personnel.

2. *Command Post Exercise, Fiscal Year 1931.*

a. The III Corps Area Commander was directed in the spring of 1929 to submit estimates for a command post exercise, to include the Regular Army, National Guard, and Organized Reserves, to be held in 1930. Funds were included in the estimates submitted by the War Department to the Budget Officer for the fiscal year 1931. It was not until spring that the exact amounts became known to the corps area.

During the last year the report of extensive maneuvers in the VIII Corps Area became available for study by the III Corps Area staff. The Com-

manding General and the Chief of Staff visited the V corps Area for the combined air and ground exercises held at

G-1 and G-4 Sections, III Corps

Fairfield, Ohio, during late spring, 1929. During July of the same year, the II Corps Area conducted a command post exercise at which were present as observers the Chief of Staff and other general staff officers from the III Corps Area. These opportunities for observation, and the reports of the exercises, gave the corps area staff a background for its work on the CPX for the III Corps Area.

b. Site for the Exercise.

Fort George G. Meade fulfilled more of the requirements as a center from which the exercise could be held than any other post in the corps area. It was centrally located, thereby reducing the cost of transportation. It was accessible. A problem could be based upon the adjacent terrain, which would have a reasonable and interesting background. The facilities for housing and messing the personnel were greater than at other posts, but not wholly adequate for the exercise.

c. Time and Scope of the Exercise.

It was desirable that elements of the following troops should take part in the exercise: 28th and 29th Divisions, and 52d Cavalry Brigade—National Guard; and the 79th, 80th and 99th Divisions, and the 62d Cavalry Division—Organized Reserves. The most favorable time for the participation of these units was believed to be early in July. The time for the exercise, 5-19 July, was selected, although it coincided with the period of greatest activity of and maximum call upon the Regular Army for other summer training activities. The ultimate demand upon the Regular Army personnel for the exercise was, 181 officers, 11 warrant officers and 927 enlisted men. All of these were furnished from the corps area except 30 officers, graduates of this year's class of the Army War College, who were used as directors and umpires in units down to include brigades, and the 1st Signal Company, with attached students from the Army Signal School at Fort Monmouth, total, six officers and 172 enlisted men. There were no signal troops available in the III Corps Area.

The question arose as to whether the problem should be an army or a corps problem. For an army problem it would be necessary to step up the command and use personnel in positions for which they had not been trained, and, in addition, the training of the various staffs was not such as would fit them for new and higher duties. Organized Reserve divisions in this corps area have not had permanent staffs, and staff training has been limited. Under the circumstances it was decided to organize the available forces into an independent corps, using the Corps Area staff as the staff of the corps, supplemented by

necessary additional officers from the Officers' Reserve Corps. It was next necessary to decide upon the number of officers and enlisted men from the National Guard and the number of officers of the Organized Reserves to participate in the exercise. For this purpose tables of organization were prepared for the National Guard and tables of minimum requirements for the Organized Reserve divisions. These tables also gave the transportation and equipment for their command posts. The National Guard was required to bring its own equipment, including tentage. The corps area furnished the tentage and equipment for the organized reserve command posts.

d. Facilities at Fort George G. Meade.

The limited facilities at Fort George G. Meade were the controlling factor in participation of personnel. Three messes had to be prepared to accommodate the 666 officers who ultimately attended. The number authorized was a compromise between the ideal for tactical requirements and facilities for messing. There were not sufficient mess halls available for the enlisted men. Plans had been previously prepared for an increase in the summer training facilities at Fort Meade. Funds for the construction of seven additional mess halls were made available by the War Department and construction began in April and was finished by July 1. These new mess halls and one old one were used to accommodate the 1785 enlisted men who took part in the exercise. The mess halls were completely equipped with mess and kitchen utensils and it was not necessary for the organizations to bring any. The messes were run by the graduating class of the Cooks and Bakers School at Fort George G. Meade, except in the case of the National Guard, which ran its own messes.

Radio Station, C. P. 29th Div. (Nat. Gd.)

e. Preparation for the Exercise.

Having decided upon the extent of the exercise, it was necessary to secure personnel for the housekeeping arrangements at Fort George G. Meade, for the communication nets for the organized reserve divisions, and also for the corps command post. There was established at Fort Meade on May 15, a communications schools for the training of about 160 enlisted men who were to work as administrative and communications details at corps headquarters and in the organized reserve divisions. This number was in addition to personnel which was to be secured from the II Corps Area, that is, the 1st Signal Company and 50 graduates of the Fort Monmouth Signal School made available after their graduation in June. It was realized that the success or failure of a command post exercise depends

largely upon having trained communications personnel.

It was also necessary to establish at Fort George G. Meade the office of a headquarters or camp commandant. This office had charge of all housekeeping arrangements for personnel who attended the exercise. This headquarters consisted of the usual headquarters staff, largely supplemented by billeting officers, mess officers, and transportation officers, totalling about 35, with considerable clerical help. The headquarters commandant secured all sites for command posts, had charge of all housing and messing arrangements, and the transportation necessary to move the personnel daily from Fort George G. Meade to the various command posts along a 20-mile front, the front line units in some cases being 20 miles from Fort Meade.

Arrangements had to be made to secure some 300 tents for the camp at Fort Meade and to have them pitched just before the arrival of the personnel. All quarters and tents were furnished with bunks, necessary bedding, tables, and mosquito bars. Tentage and equipment for the command posts of the organized reserve divisions had to be estimated for, secured, transported to the sites, and erected. Command posts having been established, it was necessary to maintain a guard over them at night. Besides the quartermaster property, there was $37,000.00 worth of signal property taken from storage for the exercise.

f. Objects of the Exercise.

(1) *First.* To bring into view some of the phases of the General Mobilization Plan.

(2) *Second.* Demonstration on the terrain of certain tactical principles: concentration; covering forces; position defense; defense of a river line; counterattack; counter-offensive; exploitation, using a mechanized force.

(3) *Third—Training.*

(*a*) Training for higher commanders.

(*b*) Training of personnel of the general and special staff sections, individually and in teamwork.

(*c*) Acquiring a knowledge of subordinates.

(*d*) Visualization of the terrain covered by a unit in battle, including its supply and evacuation arrangements.

(*e*) Actual placing of a communications set, and its maintenance and operation.

(*f*) Establishing contacts between the components of the Army. Making new acquaintances.

It is believed that if a majority of the objects enumerated in this paragraph was attained, the exercise must be counted a success.

g. General and Special Situations.

(1) Early in the Spring copies of the General and First Special Situations, and Second Special Situation Blue (extract), were sent to players in order to stimulate interest in the exercises. These were accompanied by a limited number of maps.

(2) Later, a schedule of activities for the week, 7-12 July, was sent out. This stated that the period 7-9 July would be utilized in the organization of the command posts, orientation, reconnaissances, and the solution of problems previously prepared by division and subordinate commanders; that the second three days, 10-12 July, would be utilized

in reconnaissances, solution of exercises previously prepared by division and subordinate commanders, perfecting staff and team work, and in testing and operating communication nets by using previously prepared exercises and messages, to the end that the communications personnel be able to operate efficiently during the second week. No limit was placed on the initiative or the control of the unit commander in the carrying out of these exercises.

(3) The communications net established by the night of 9 July consisted of more than 300 miles of wire, supplemented by radio. All command posts were at actual distances for the forces engaged.

(4) During the first week, from 9 to 13 July, daily Red and Blue situations, and a combined situation map, were issued in order that all personnel might grow into the events for the second week.

h. Control of the Exercise.

The exercise was controlled by "control maps" and messages. The directors were instructed to permit information to flow to the command posts in about the way that it would be received, bit by bit, in campaign. Power was given them to change time on messages, and to curtail reports required by Field Service Regulations, in order to prevent congestion in any command post.

Directors were also instructed to allow full initiative to the unit commanders in making their own estimates of a situation and decisions. Directors and umpires were an insurance carried by the corps area headquarters to be used in an emergency.

i. The Exercise—14-18 July.

The situations between July 9 and 10 and July 17 were briefly as follows: On the night 9-10 July, Red forces landed between Annapolis and the mouth of the Patuxent River and were opposed by the 62d Cavalry Division on the south and the 52d Cavalry Brigade on the north, as covering forces for the concentration of the 28th and 29th Divisions, which were arriving at this time. The 79th Division, which had been in theatre reserve, was made available to the Blue commander, whereupon he decided to take up a position defense to stop the Red advance. The divisions were disposed as follows: 29th Division on the right, 28th Division in the center, and the 79th Division on the left, along a front which extended from near Buena Vista through Priest Bridge to Benfields. On July 14, the Reds launched an attack for the purpose of driving in the Blue outposts and securing a line of departure for a coordinated attack on the morning of July 15. The Red attack on July 15 was successful to the extent of penetrating the Blue line on the front of the 79th Division. The Blue III Corps used all reserves available to stop this attack. The 99th Division was at Lansdowne in theatre reserve, prepared to move by truck to reinforce either the III Corps or the IV Corps, which was on the Delaware front. Upon request, this division was made available to the III Corps. It proceeded by a night march and counterattacked through the 79th Division at daybreak on July 16. The attack was successful in restoring the original line. Blue now having superiority, and taking advantage of the situation before Red could secure reinforcements from the Delaware front, the Blue commander decided to

launch a counter offensive on the morning of the 17th, enveloping the Red left flank. The 80th Division, which had been arriving in Washington since July 13, was used for this purpose. The 62d Cavalry Division, on the Blue right, was used in conjunction with a mechanized force of the strength of a brigade to exploit the victory. The III Corps aviation assisted in the attack upon ground troops, enemy installations, embarkation points, and transports. The exercise was primarily a ground one; therefore the use of aircraft and antiaircraft defense was limited and not stressed.

3. *Publicity.*

At corps area headquarters it was felt that great publicity should be given to the exercise for obvious reasons. To this end the various news agencies and certain papers were communicated with and asked to send representatives to Fort Meade, where quarters, mess, and working facilities would be made available to them. The response was not as gratifying as was hoped for. However, daily articles were sent to some 250 newspapers throughout the corps area.

4. *In conclusion.*

a. An exercise of this type requires considerable time to prepare. The general scheme was discussed and adopted before the holidays, 1929-30. The details were started soon after January 1 and it required about six months to complete them. The General and First Special Situations were issued at an early date in order to stimulate interest in the problem. Maps, one-inch and three-inch, were specially prepared and contained the latest data available. A mosaic of the front line was made by the Air Corps. In order to make the exercise real, front line messages were prepared for each hour during the play of the second week and covered each thousand-yard sector (within approximate centers of resistance) of the line. Administrative and logistical messages were also prepared. Paralleling the tactical preparations were administrative details of supply and personnel, which were solved only through the hearty cooperation of the supply services.

b. Both the National Guard and the Organized Reserves displayed continued interest in the problem, not only in the preparation but also in the operation. It is believed that considerable benefit was derived by them. It goes without saying that the problem was a refresher course for the corps area staff.

c. It is felt that, notwithstanding the immense amount of work involved, the Government received adequate return for the money spent on the exercise.

d. In the future, the divisions of the Organized Reserves should be trained annually, in succession, in an exercise which would include all personnel down to regimental staffs and representative front line battalions. This is necessary in order that commanders and staffs may secure the necessary training as individuals and as division teams. Further, it is believed that Reserve Officers should be assigned to divisions of the Organized Reserves in specific staff positions for a period of years.

e. Once in every five years a command post exercise should be held, similar to the one just concluded, for higher commanders and staffs, to include brigades only.

The Third Corps Area C. P. X. Communications

MAJ. GEN. GEORGE S. GIBBS, Chief Signal Officer of the Army

THE best medicine that could be prescribed for those who are afflicted with discouraging and pessimistic views regarding the state of the Army is a visit to army activities in the field. No officer could see a representative variety of the earnest and business-like efforts that are being carried out by the Army for the systematic training of its components without becoming tremendously impressed with the progress that is being made, the hard work that is being done, the intelligence with which programs have been formulated, and finally, with the high state of efficiency that is being reached. He will come back home proud of the Army, and with vastly increased confidence in its ability to maintain a reasonable degree of efficiency in the face of conditions that often seen to present insuperable difficulties.

I felt that way when I returned from a visit to Fort Meade, Maryland, covering the last two days of the command post exercise conducted by the Third Corps Area, which ended on July 19.

This exercise constituted a training effort on a much larger scale than any that has been undertaken since the World War. If the units represented had been at full strength there would have been a force of approximately 140,000 men, including five infantry divisions, one cavalry division, and one cavalry brigade, together with certain improvised corps units, particularly air corps and communications troops.

The command post of the corps could not have been more complete if its full strength in troops had been present. Likewise the command posts of divisions, brigades, regiments, and battalions were manned and organized just as they would be in actual combat. The problem upon which the exercise was based was ideal for the purpose. It provided reasonable assumptions that excited the imagination and stimulated the solution of each successive situation that confronted the commander and staff of each unit.

A front of some 30 miles was covered, so that the dispositions and the distances covered were normal and not imaginary. The travel was real travel, and the installation and maintenance of the extensive communication system were real labor, lacking only the interruptions from shell fire and the movements of command posts to duplicate the conditions of real warfare.

In one respect the demands of this peace-time training exercise put a heavier strain on the communication system than real warfare ever requires. I refer to the message traffic load. More messages were handled over the communications channels in the same period of time than would be handled in actual combat. There is no such thing as blank ammunition in the message business. There are no simulated messages.

The corps wire net included approximately 300 circuit miles of wire. There were handled no fewer than 25,000

A Well Concealed Radio Station Erected During the C P X at Conways, Maryland

messages during the four days of the exercise, and average of 6250 messages per day.

Had corps artillery and air forces and other appropriate corps troops been present the installation and the message load would have been increased proportionately.

I shall not attempt a description of the problem, itself. General Sladen and his staff are to be congratulated upon the formulation of a problem so well adapted to the terrain available, so well calculated to appeal to the interest of the participants, and upon the painstaking skill with which its details were worked out. This problem may well be used as a basis for future indoor instruction.

A command post exercise is very largely a communications exercise. While the operation of the communications net is a means to an end, it is quite true that the exercise would be impossible without signal communications. In this connection it is interesting to observe that, regardless of the absence fo troops, both the command and staff and also the communications agencies perform thei.' full war duties in such an exercise, and are afforded the opportunity of working together with all of the benefit that comes from mutual contact and from familiarity with the organization and operation of command posts in the field.

All human agencies have limitations. This applies to unit staffs as well as to means of rapid communication, and it is only after they have worked together that these limitations become understood, and smooth operation results.

The appropriate communications troops for an exercise of this magnitude do not exist in our country. The ingenious improvisations, the preparations begun months in advance, and the supplemented facilities rented from commercial telephone companies that made such an undertaking possible are all interesting, and are especially valuable to those who may some-

Laying Wire from an Improvised Cross-country Wire Car

time be confronted with a similar task. Colonel Seoane, the Third Corps Area Signal Officer, has prepared a detailed report of the operation of the communications in connection with this C. P. X. It will be published in the *Signal Corps Bulletin* and will thus become available for reference and study.

Briefly, what was done was this: The 1st Signal Company of the 1st Division, Regular Army, was borrowed from the 1st Division and the Second Corps Area. This divisional company laid the entire wire network within the area of the corps; that is, at corps headquarters, to corps troops and to each of the six divisions. An extra allowance of field wire and extra time for preparation made it possible for such a small command to do such a big job.

The communications units belonging to Regular Army troops stationed in the Third Corps Area were brought together at Fort Meade and given special training for one month before the exercise period. They installed and operated the divisional nets of four divisions,—the 29th, 79th, 99th and the 62nd Cavalry Division. The 28th (Pennsylvania) Division had its own signal company. The divisional net of the 80th Division was installed and operated by the R. O. T. C. and C. M. T. C. students receiving combined training at Fort Meade at the same time, and provisionally organized for that purpose.

TRAINING METHODS IN EVIDENCE

Two outstanding observations impressed themselves upon me at this Third Corps Area C. P. X. One was

the uniformity with which the adopted technique of message center procedure, of switchboard and telephone procedure, of line construction and maintenance were carried on at every command post and within every unit. It was unexpected and quite striking. It bears eloquent evidence that the teaching at the Signal School at Fort Monmouth has not only had a widespread dissemination throughout the Army but has also had an enthusiastic acceptance. It shows that the officers whose business it is to teach those things to the various elements of the Army of the United States are doing effective work.

Perhaps it was to be expected that the 28th Division communications would work like a well-oiled machine. They have a long and brilliant record of efficient operation. It might also have been expected that men from the Regular Army units working in an improvised organization would here and there show evidence of their individual training. But the fact was, that there was little to distinguish between the work at the various command posts. Those R. O. T. C. and C. M. T. C. boys at the 80th Division went through the same motions, followed the same message procedure, rapidly attained the same familiarity with the prescribed method of doing things and the same business-like precision of operation.

It may be said that such results were not reached without long preparation and much hard work. The fact that it can be reached at all convinces me that it has had the impetus of something even more than time and labor, and it is encouraging to see.

THE ARMY IS COMMUNICATION MINDED

The other outstanding observation was that, at last, the Army has become communication minded. Commanders and staffs of units of every size prepared and issued all of the orders, made their reports and transacted all of the business of combat exactly as they would have in war. Practically all this business was done through the communication network. These responsible officers took a real interest in having that system work. Their own familiarity with procedure, with the technical requirements and limitations of methods and equipment was a great help. This condition has not always obtained in the Army. These same officers contributed further to the successful working of the system by recognizing the priority of communication work for communications troops, and even for other troops when they are needed to help out.

There was a time when some unit commanders, hard pressed for men to perform all of the duties that seemed to demand attention, took the radio and switchboard operators and used them as cooks in additional messes, as drivers of motor vehicles and the like, and let the communications slide. This may still be done in some organizations, elsewhere, but was not in evidence during the Third Corps Area C. P. X. I do not know how far this splendid result is attributable to the 1930 brand of communications consciousness of the unit commanders, themselves, nor how much of it is due to the persuasive insistence of the corps area commander, his chief of staff, and the staff officers directly responsible for conducting the exercise.

THE EQUIPMENT WORKS

There was nothing particularly new in the way of equipment used at Fort Meade. It was all of current standard type. Some of those types are not

likely to be improved upon for a long time to come.

Upon visiting each command post the question was always asked: "Well, how does the equipment work?" The usual answer was: "Oh, very well, indeed, we have had no trouble." In fact, there was so little trouble that the situation didn't seem to be normal. Again, it gets back to the training. Good equipment works beautifully in skilled hands. In unskilled hands the best of equipment will be blamed for failure, and used as the basis of an alibi for ignorance and neglect. Many a credulous officer has been imposed upon by such claims. Commanders should become acquainted with what is being done in places where men have become skillful and "know their stuff," and they will then know what to expect.

Some two years ago, representatives of the combat arms recommended against the regular supply of certain articles of shelter to protect radio sets, telephone switchboards, cross-connecting boards, and message center equipment in the field, and also of supports for some of those articles. This action was taken on the theory that the supply situation should not be further complicated by adding this burden and that improvisation could well be left to the troops. Regardless of whether the decision was right or wrong, it is evident that the troops have done a good job of devising such articles. They have shown much cleverness and ingenuity. Most of the equipment mentioned is delicate and will not work efficiently in a driving rain. Every outfit that I saw had met this problem in a workmanlike manner and instrumental equipment was set up so as to go on working under other than parade ground conditions.

I frequently heard these questions: "Is this big undertaking worth while?" "Are the results to be gained from a command post exercise on such a scale worth the cost in money and labor?"

In my opinion it is well worth while. We learn to do things by doing them. It is even more necessary to practice brains than to practice muscles. It is therefore essential that the elements that go to make up a command post, —the commander, the staff officers, and the men who handle their communication facilities,—work together often enough and long enough to do the job as it can be done when all hands are properly trained. Lower units and higher units working in proper relation, each doing its part as a member of the team in a well devised general exercise—that is the final form of military training.

The unusual excellence and continuity of signal communication service during this exercise has been mentioned. Signal officers and men performed beautifully in all units. Once the initial installation was completed and tested there was practically no maintenance work required, since there was no shell fire to damage the lines. There was no movement of command posts requiring the echeloning of signal service during such moves. The final test of any signal organization comes when line damage is a regular event and casualties to personnel deplete the men required to install, maintain and operate the signal system. Commanders must have communication service, and trained signal personnel must be continuously available to provide it. Does our present organization provide for a continuous flow of trained signal specialists to replace casualties in all units?

Command Post Exercises

Leaves from a Major's Note Book

COMMAND post exercises are a feature in the current trend of our tactical training. They are, as it were, accepted in principle. They appear with a wide range of actual value. Like the movies, to enjoy a good one, one must attend many. Wherein do they fail, and what can be done in the preparation for these exercises that will make the poorer ones less frequent? Having participated in many of these exercises, varying from those of a battalion to one for an army, and having been in some cases the target of teaching, in others an assistant or umpire, and in still others, the master criminal, the author, I feel the urge to record what I believe to be the short-comings of many exercises. This is not to be a treatise on how to prepare such exercises, but rather an intimation of the pitfalls which may occur to spoil a good exercise. Many of these defects are obvious, but they occur so frequently that it appears that they are not generally taken into account.

In the first place, for some reason, the author or director of an exercise becomes dearly attached to it and cannot bring himself to see its imperfections or to keep himself from repeating the imperfections in later problems. Seek criticism of your problem during its preparation and after it is held, and listen to that criticism.

Even after having schooled yourself to heed such criticism, you will find it difficult at times to secure it. As a chief director, drop into a command post during an exercise. If you have a normal group of officers, and particularly if they are politic National Guard or Reserve officers, and if you ask how the exercise is going, the answer will be, "Fine, fine." You ask if the information is coming in all right and receive the answer, "Fine, fine." You inquire how the exercise is serving as instruction for the junior officers and receive the answer, "Fine, fine." But could you be present during a slack moment later in the day when they are eating their lunch in a shady fence corner, the comments you would hear would be entirely different, and many of them would be of undoubted value when you came to write your next exercise. If you desire more comments, you should listen in on the conversation of your assistant umpires who have been trying to unravel some of the vague mysteries of your problem. No one man can write a perfect command post exercise, so seek outside opinion and assistance. And remember this, it is the attitude of the participants towards your exercise that puts its real price mark upon it and determines its success from the view point of instruction.

You may be compelled to work with insufficient equipment, but one thing you must have and that is good maps and enough of them. We may fight battles without maps, but in the usual command post exercise they are a necessity. Not only have maps, but have them in shape for convenient use. If you provide your assistant directors with ample good maps, prepared for convenient use, your rise in their estimation will be immediate.

After you have issued your problem, allow time for the situation to sink in. If ground reconnaissance is a part

of the problem, allow time for it; otherwise you will have incorrect decisions that do not fit in with your plans.

It is essential to keep within the bounds set by the amount of available equipment and assisting personnel. If you have only the equipment, or only the assistant umpires for a division problem, do not try to expand your ideas into a corps problem. Insufficient equipment irritates your class, and an insufficient number of assistants, with the resulting lack of coordination and supervision, will doom any problem.

If your problem is one simply for instruction in the mechanics of communications and message centers, you may perhaps disregard tactics, but for the ordinary command post exercise the consideration of tactics is essential. The time for the main tactical considerations is when the problem is being written, and the tactics must be linked with the terrain. For example, I recall one problem in which one of the essentials, as the author conceived the problem, was a counterattack. But when the time came, the commander flatly refused to counterattack and thereby dislocated the entire problem. In this case he was right, for the line, as drawn in the problem, was tactically unsound, and to counterattack to restore it meant useless loss of men.

The crux in the preparation of command post exercises for the average officer, and certainly his greatest mental hazard, is the determination and adherence to the main concepts involved and the submergence of details. What avails the greatest mass of details, if the conception of the problem as a whole is not sound? There must be certain ideas to be brought out; a successful defense, a retirement, an attack with a continued advance, or a repulse, a withdrawal, or a combination of these. This must give a sweep to the whole problem.

Division Command Post Truck Ready for Work

At the beginning of the preparatory work it is well to write out a scenario of events that are to take place. Then allot the forces, Red and Blue, to bring this action about. This gives you a framework for the whole problem. When perfected, this outline or scenario should be reduced to writing so that each umpire can be furnished a copy; he will know the entire situation, he can see where the part he is to control fits into the general whole. With a little use of his imagination, he can build up his local situation so that it will be logical for the troops with which he is concerned, and coordinated with the action on every part of the battlefield.

Do not load your assistant umpire with a mass of details. He will become lost among them and will spend useless time trying to fathom your wishes. Furthermore, some of your details are bound to go wrong, for even the keenest mind cannot foresee what is going to take place when a commander begins to issue orders on his own account. On the other hand, if the assistant umpire knows by your

general plan what is expected of the units he is supervising, he will meet any unexpected situations that arise,

Division Command Post Truck in Position and Personnel at Work

his decisions will be clear cut, for he will be master of his local situation. He will assert himself, draw upon his own imagination, feel the responsibility for his section of the problem and secure the maximum of instruction for the commanders and staffs. The versatility and initiative of assistant umpires when fully informed of the general plan and unhampered by details will prove astonishing. Trust your assistant umpire, get him back of your problem, and your worries will diminish. But first the assistant umpire must have faith in you, and he will have it only when he realizes that you have a well conceived plan for your whole problem. Therefore, apply your talents to the broad aspects of the problem, and apply your scamp work to the details.

One of the greatest features of an exercise, and the one most generally mishandled, is the enemy's situation. Our tacticians and strategists tell us to study the enemy, yet we find the Reds scattered over the landscape, reported hither and yon, with the same unit appearing simultaneously at different places, all in a turmoil beyond the grasp of the keenest intelligence officer. When his report comes to the commander, there is nothing upon which to act. If your problem is more or less a set one and permits of prearranged control, the first step is to provide phase lines showing where the Red line is at various hours. Put these phase lines on maps and give them to the assistant umpires. In addition to the phase lines, these maps should show the exact location of every Red unit, and each umpire must know the area in which he controls the movements of Red units. Thus Red units can be reported only where they actually are, and no two umpires will be trying to handle the same Red unit. Above all, the Reds must adhere to a sound tactical plan. If you have a moving situation in a large exercise, there may be a Red staff that plans out a logical series of movements for the Red units according to a general tactical plan. This requires most skillful handling, and will be successful only when the decisions of the Red staff are timely and can be communicated immediately and simultaneously to all the umpires concerned. No matter how it is brought about, a thoroughly organized enemy situation is of immense value to any exercise.

Information should be given out by the umpires at a logical point for such information to originate. If it pertains to the front line, let the umpire there give it out. Incidentally, since the great mass of the information will come from the front line, you must have sufficient umpires to place one with each front line command post. These umpires become the key to the entire exercise. Concurrently, avoid interference from higher echelons. I recall a problem in which an enthusiastic assistant umpire had succeeded in

working up a tense situation, interest was keen, the problem for the moment had become real warfare to the commander and staff. Suddenly down from the corps came a message giving the location of a hostile battery of 155 howitzers; the location was plotted on the map; it proved to be exactly in the Blue front line. Everyone laughed at the absurdity of it; the tension was gone; the real war vanished—after all it was only a paper war, and a poorly coordinated one at that. The answer is to coordinate your Red units and to get the information in at the right place. A great help to an exercise is a communication net for umpires only. This permits instantaneous communication and a thorough understanding among umpires.

There is a tendency, in preparing problems, to feel that numerous situations must be presented, and presented rapidly and continuously. As a matter of fact, a simple problem well worked out with a limited number of situations will provide better instruction. Time must be allowed for each situation to be handled. In one problem, for example, a division had been ordered from the line to a position in reserve; the staff was busy getting out the orders; areas for units were being determined; the artilleryman was busy studying his area and seeking water facilities for his animals; the military police was being given a new problem to meet; the supply and road situation was being studied; everyone was busy and interested. In the midst of this there came from the higher echelon a complete new situation, one that contributed not a whit to the general situation. The work that had been progressing so nicely was dropped and the new job was taken up, but half-heartedly. The officers resented this lack of coordination and understanding; they felt that they were simply being badgered.

Division Command Post Trucks on the Road

Frequently these changes are injected by the author because he fears that everyone will not be busy every minute of the time. What difference does it make if everyone is not busy every minute, as long as good instruction is imparted? Many messages are inspired simply to create work, many assignments to jobs are made simply to occupy some officer who is available. Anyone who in the old days attempted to drill his company until recall sounded and long after he had exhausted his ideas, knows that the men sensed immediately that they were being drilled just to kill time—and they responded accordingly. Yet authors of command post exercises still cling to the belief that they can fool officers by injecting work merely for work's sake, to keep them busy. The efficient thing to do is to inject nothing into a problem that does not logically belong there for instructional purposes, and to have no more assignments than necessary. Far better is it to allow a young and inexperienced officer to act as an under-

study than to give him futile time-killing work.

As a last injunction, plan your critique beforehand. To permit a commander at the critique to drone along with a mere recital of what occurred at his command post is a loss of time to all. Require him to pick out the salient points or to refrain from speaking. Determine the points you wish to emphasize, and have them brought out. And above all else, when you give your critique, do not tell how good your problem was; it is safe to say that there were spots where it was not so good, and every man present knows them better than you do.

All told, your problem will have a better chance for success if you seek the criticism of outside minds in its preparation; if you adjust your problem to available equipment and assisting personnel; if you insure a tactically sound based on the terrain; if you work out your situations in a broad way beforehand, present this broad conception in an intelligible manner to your assistant umpires, and refrain from submerging them with details; if you develop a thoroughly conceived enemy distribution and action, and provide for reasonable changes therein as the action developes; if you insure that information is given out at the logical point of origin; if you rely upon thorough preparation beforehand rather than upon interference during the problem to prevent errors; if you inject into the problem only what pertains to it with the view, not of keeping men busy, but of imparting instruction; and if you do not resort to numerous and confusing situations, but keep your problem simple.

Modern Maxims

Capt. M. B. Driscoll, O.R.C.

You can accomplish nothing when you are filled with can't.

A commander who cannot give orders had better order a coffin.

If you want a statue when you die do not be one when alive.

A nation that rests on its arms never tires of life.

Though an army may bring morons together, only morons fail to bring an army together.

The Argonne Forest proved that we had good timber.

On Mechanization

BRIG. GEN. LEROY ELTINGE

AS we have all often heard enunciated, the main principles of tactics never change; but the technique of the application of these principles is constantly changing as arms, armor, means of transportation, character of supply, and the personality of the soldier change.

In the olden times when the soldier was coarse, strong, hardy, more or less stupid, and thoroughly accustomed to privation, he might live on a ration of boiled whole wheat or barley and, in campaign, carry ten or fifteen days' rations on his person, together with his arms and most of his reserve ammunition. Try to get a modern soldier to accomplish such feats!

The soldier of ancient times, though he could be his own combat and field train, required the most rugged discipline to make him face the unusual in physical or mental surroundings. Sometimes even the most frightfully cruel disciplinary measures could not make him stand against the images brought to his mind by omens, portends, a thunder shower, or an eclipse.

To-day we have a soldier who is less hardy physically but more stable mentally. Nevertheless, words can be used to bring before his mind images or ideas that affect his battle behavior, and he can still be terrorized by any destructive force with which he is not familiar.

Systems of tactics must take account of these changes in the soldier's mental atmosphere, constantly modified as it is by the material, social, and political conditions under which he lives, but even more modified by the emotions which publicity, propaganda, and the oratory of the demagogue engender. New inventions in offensive and defensive power are constantly taking place, conditions of life are changing and new emotions are being brought out by the presentation of ideas which, while they may not be new, are at least presented afresh after they had been in a period of eclipse, and thus they appear new. So it comes about that a new school of tactics develops every few years in conformity with changed conditions, and *any army that does not adapt itself to these changes will be hopelessly inefficient in war.*

The tactical trend that is everywhere in evidence now is toward mechanical warfare. This trend is brought about by both mental and material changes. The great losses of the last war have made peoples, not less determined to attain their own ends, but more anxious to find a way of doing so at less cost of life and money. They would like to find a way to enforce their will by words, propaganda, creation of favorable sentiment, and such measures; but, these failing, they want to find a way to destroy the opposition by a quick powerful blow that shall be without attendant heavy loss to themselves.

The "Nation in Arms" is being rejected as an ideal, and a comparatively small but highly trained, mobile, hard-hitting force capable of destroying "The Nation in Arms" before it can

be equipped, trained, and mobilized is being sought. If the emotions of the crowd are once well aroused, it will accept neither an adverse decision nor a compromise, but will demand sterner measures to enforce its will. In no country has the crowd renounced having its own way, but it wants to pay less for domination.

In civil life machinery can be utilized to relieve man from hard labor and danger, and can accomplish any desired result more cheaply than manpower. In war man must labor to exhaustion, suffer privation and hardship, and be exposed to danger. Why not make war by machinery? If the aviator in his machine in the past war could be free of most of the disagreeable accompaniments of warfare on (and in) the ground, why could not the machine make war on the ground free from hunger, dirt, wind, slush, lice, and continuous exhausting effort amid unpleasant surroundings? So everywhere there appears the idea of making war by machine. We have a genius for machinery—why not utilize it?

It is generally realized that a determined enemy, emotionally aroused, be conquered by destruction processes alone. He must be dominated in detail by a constant watchfulness and a constant pressure that renders any attempt at resistance both dangerous and useless. *Only a numerous, active, and powerful ground force can maintain in this constant watchfulness and exert this uninterrupted pressure.*

To the imagination a mechanized force holds out hope of quickly and easily acquiring domination over hostile territory. Less fighting, less loss, fewer men required, and consequent less expense—but still domination assured. It certainly looks well to the popular mind. No one thinks it out in just these words, or even thinks much about it at all, but the impression is just absorbed from the general mental atmosphere and will affect the tactics of future conflicts.

The United States first developed a practical airplane and is far in the lead with all classes of motor vehicles. We have innumerable men who are accustomed to operate machines propelled by engine power. In everything that has to do with the internal combustion engine we have almost unlimited facilities for production and operation. We could develop mechanical warfare with greater ease than could any other country. The trouble is that, regarding mechanized ground warfare, we do not know just what we want to develop. In the air we know about what we are seeking and the approximate lines of development desired; but on the ground we are just beginning to realize that some development of mechanized warfare is required—just what no one knows.

The War Department is fully aware of the need for experiment in both the material and the tactics of mechanized ground warfare, but cannot go far without money.

Great Britain has become the leader in mechanization although hampered, like ourselves, by an appropriation system that requires every idea to be sold afresh each year to both the legislative and executive branches of the government, and thus both are prevented from having any possible continuity of policy in such matters. Both our people and the members of our government are interested in and impressed by things mechanical, hence a policy of experiment with mechanization has a good chance to be sold afresh

each year. If the United States is not to be surprised by a development of a new kind of fighting force against which our Army would be at a great disadvantage, the necessary experimentation in mechanization and the development of tactics to fit must be made.

Ideas in the subject run all the way from—(a) the fellow who compares the armored fighting vehicle to the elephant on the ancient battlefield that was a terror if resisted in place but could be allowed to pass harmlessly through the battle front and cut down at leisure behind it—to (b) the one who sees a herd of tanks that the air service will hide from view and artillery fire by smoke screens and direct from the air so that they may charge through the hostile ranks to the enemy's destruction with little danger of loss to themselves, quite like the armored knights of the days of chivalry.

But it must be remembered that the armored knights could be defeated by unarmored (or lightly armored) infantry with plenty of nerve and bit of brains, as Bannockburn and Coutrai testify. Cambrai in 1917 gave at least a very strong hint that a mass of tanks without a strong, active and courageous infantry on the spot to take advantage of the shock of the tank attack may be in the same case.

The faster tanks travel, the further behind will fall their infantry and artillery support, and the less effective their fire becomes. If they stop to fire, they at once become vulnerable. Infantry with nerve may let the tank pass through, like the elephant of old. Tank men know this and contemplate deployment of tanks in depth in order to prolong infantry's confusion and delay its reforming. As a counter, infantry has increased the number of its anti-tank weapons and plans to distribute them in depth also. The increased use of smoke is relied upon by tanks to prevent the effective fire of antitank weapons, but it would seem that that same smoke will still further restrict the already very imperfect view from the tank, will lead to the tank's loss of direction and cause failure to find the tank objectives and the designated assembly or reservicing points, will increase confusion, will decrease control, and, as a tank is more visible than an individual soldier or a concealed antitank weapon, smoke will permit those who cannot fight a tank to avoid it while allowing antitank weapons to get in a disabling shot while themselves remaining undiscovered.

There has appeared, of course, the idea of increasing the tank's protective armor until only heavier guns can do it damage, but it has been quite generally abandoned because of the consequent decrease in tank mobility and the certainty that guns could always be made that would penetrate any possible tank armor.

The main difficulty, then, of a tank action is to insure that supporting infantry and artillery are at hand at the exact moment when their intervention becomes essential. This provides one of the main subjects for experiment. Can tractor-mounted artillery and machine guns, and infantry in vehicles that can traverse the difficult ground of the battlefield, be brought into action at the right time and place? Must all these vehicles be armored? Must they be borne on tracks, on wheels, or on a vehicle that has a combination of both? Can an infantry division make the approach march, be de-

veloped, even partially deployed, in such conveyances? Would a separate mechanized force need heavy tanks, or would it be better for it to contain only lighter and faster fighting vehicles and be used habitually to strike through the weaker and more vulnerable spots? How effective would it be in exploiting a break-through, making a parallel pursuit, speeding up an envelopment by forming the marching blank of the enveloping attack, making a raid against hostile communications, meeting an attempted beach landing on our coast, protecting temporarily a threatened point, reenforcing a weak spot in the battle line, making a counterattack, destroying hostile communications, or breaking up a hostile mobilization at the beginning of a campaign?

There is no question that a strong mechanized force would be invaluable for all these purposes if it could be supplied, maintained, controlled, and directed, and had a sufficient radius of action. No country in the world is so well provided with mechanics, machine-shops, gas and oil, all well distributed, as is the United States. Incidentally, in no other country would a long raid by a swiftly moving hostile mechanized force have such good chances of subsisting off the country. With everything needed readily available, our Service can be counted upon to work out the problems of maintenance, evacuation, and supply. The place where experiment is most needed is in the matter of a control that would make the exercise of command possible. The next most important problem for experiment is to determine the types of vehicles for reconnaissance, for tanks, for artillery transporting vehicles, for troop transport, for signal, chemical service, and engineer vehicles, and possibly for animals.

With regard to the latter there are certain kinds of ground and conditions of weather that do not permit tanks, motor vehicles, or air service to perform the duties of observation, protection, or liaison; and there is country, like heavily wooded hills for example, in which none of these can operate successfully.

Deployed cavalry, even in the open, does not offer a good objection for tanks and armored cars, for to fire with effect the motor vehicle must stand still and can be readily avoided by mounted men, while to run down individual horsemen does not give results proportionate to the effort expended. Tamurlanes mounted warriors suffered very little from rushes of hostile elephants. The cases are approximately parallel.

Would a large mechanized force need cavalry and pack carried machine guns, or would it habitually operate only in country void of the difficulties that only horsemen can overcome?

Both experiment and trial on the actual field of battle have shown that infantry in trucks and confined to roads is slower than infantry on foot, unless the distance to be traversed is considerable. Also it takes a long time to get infantry detrucked and moved from the detrucking point to the firing line. Infantry in vehicles that can travel off the roads, even partially deployed into lines of small columns if necessary, could materially shorten the time required for both detrucking and the approach march. Only direct fire of artillery does damage to closed armored vehicles, and bombs and gas are comparatively ineffective against them. The losses during deployment might be

materially reduced were troops transported in such vehicles.

Motor vehicles that are confined to the roads have great strategical but no tactical value. Would large numbers of such vehicles, even when deployed, offer such a good target that troops in lighter, faster-moving unarmored cross-country vehicles could traverse the more distant part of the battlefield more quickly and with less ultimate loss?

The great difficulty in the employment of all kinds of closed armored vehicles is in control and the exercise of command. Perhaps we shall have to learn to run such vehicles, particularly in snow, fog, or smoke, by some kind of a direction-finding instrument, dead reckoning, and a system of offsets when some piece of terrain has to be avoided.

This subject is vital and, so far as I know, has been least experimented upon. A method of combat that can be thrown into utter confusion and wholly disjointed by a deluge of smoke is not only useless but dangerous.

Several of our big manufacturing corporations would undoubtedly put their technical facilities at the disposal of the War Department for experimentation with direction finding and signal control instruments for use in armored cross-country vehicles. Just what the nature of such vehicles would be is also to be determined by experiment where technical assistance would be most helpful.

One authority (self constituted) proposes to put each soldier into a dwarf tankette. This hardly seems feasable for reasons too apparent to need discussion. Other proposals are to utilize the so-called six wheeler, to employ a vehicle equipped both with tracks for cross-country and wheels for roads, to use only vehicles of the tank type, to use together a variety of types that are all capable of movement off the roads. Experiments under adverse conditions of heat, cold, mud, slush, brush, rocks, snow, sand and different grades are necessary to determine the required types of vehicles.

Only after conclusions are reached on the above subjects would it be possible to experiment on battle tactics for a mechanized force, methods of gathering intelligence, depth of formation to be used, comparative strength of reserves, kinds of objectives to be assigned the force, and many like subjects.

Many great battles have been won by infantry without auxiliaries but I have yet to learn of a great battle won by an auxiliary alone. It is true that the Tartars, for example, fought mostly mounted, but they were in great numbers and the individual fighting man was a complete unit with his own projectile-throwing weapon and with his own weapon for close personal combat. Tartar horsemen resembled infantry in that they were equipped for individual combat and were ready to fight at a moment's notice at anytime of the day or night, in any kind of terrain or condition of weather, and they were not auxiliaries. *The individual soldier capable of fighting instantly under any condition, and present in numbers, has always been necessary in campaign. Without his employment ground cannot be occupied, held, organized, and administered. He needs all the assistance that auxiliaries can give him, but he alone is absolutely indispensable.*

There will always be places and area that cannot be given up. These

will have to be made so strong that they cannot be run over by tanks or anything else. They will be defended by air and by ground troops employing means and measures that can produce a long and stubborn defense against the heaviest attack, and they will be proof against any attack that a mechanized and highly mobile force could make. To capture them will take long stubborn fighting, backed by heavy guns, heavy bombing, heavy fighting tanks and careful organization. The mobile mechanized force will be uselessly wasted if matched against such defensive power.

The good old infantry division will have to do the work, in both attack and defense. But what use is there of a defense of these invaluable spots and areas if a swiftly moving hard-hitting force can go around them and destroy their lines and supply and the places on which they depend for food, ammunition, and replacements of men and material?

Does it not seem probable that a mechanized force is destined to substitute for the light troops which all the great armies of history have contained, which were of the greatest assistance to the hard-hitting shock troops, but which were not expected to stand in place and slug it out with opposing heavy troops? By mobility, maneuver, or favorable circumstances, mobile light troops have occasionally beaten heavy troops, but that is not their function and they should not be habitually employed for more heavy and stubborn combat duty. Nevertheless, highly mobile troops are essential and, to be highly mobile, their armament must be easily transportable, and hence light as compared with more powerful armament.

The United States has all the facilities for bringing into being this class of modern light troops and should not neglect the opportunity to utilize such facilities to the safety of itself and the discouragement of possible enemies.

Tractors Have Proven a Valuable Asset to the Artillery

Strategic China

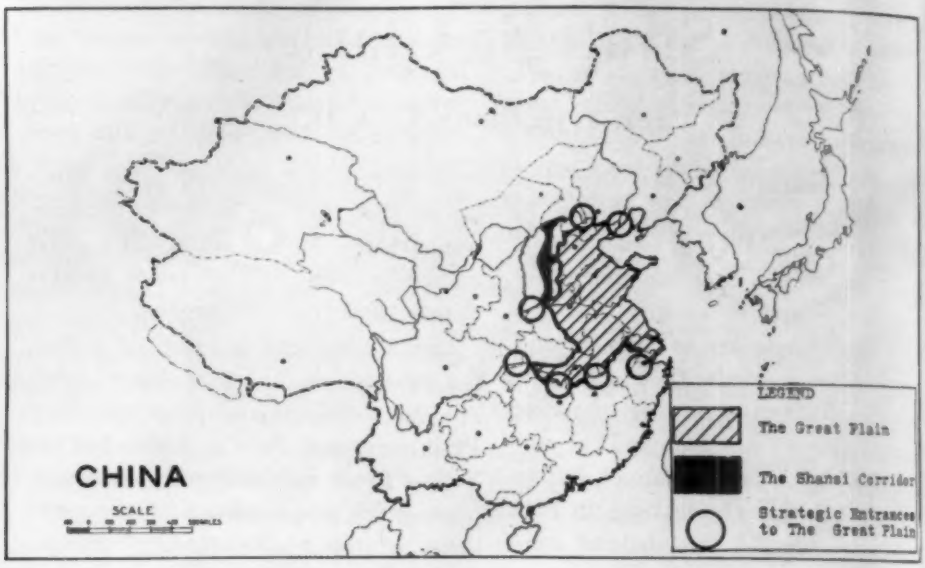
CAPT. T. J. BETTS, C. A. C.

THE perennial warfare that has smouldered and often flamed in China ever since 1911 is based superficially on politics and fundamentally on economic and sociological factors. While these forces are so complex and vague as to preclude their complete evaluation, nevertheless the observer of current events in China and the student of Chinese history cannot fail to notice that military operations in that country tend to fall into definite strategic patterns. It is believed that these patterns can be interpreted in terms of terrain and area, and that in this interpretation space, rather than distance, is the controlling element. It is from this point of view that the following essay is undertaken.

China, within her broad political boundaries, possesses a strategic unity that is unique for such an enormous area. To the east and south the country is belted in by the sea. Where the boundaries swerve from the coast, there rises a mountain barrier that, practically uninterrupted, sweeps west, then north, then east again in a sprawling semi-circle. Moreover, this mountain wall has on its outward side a great delaying zone of jungle, or upland or desert, that almost hems the country in. The mountain barrier of China proper is approachable only in the area extending from the Gobi Desert to the Sea of Japan, and even here the facility of approach is only comparative. Thus girt on all sides, the country enjoys a strategic unity similar to that of Italy or India, but incomparably vaster than the first named country and of much greater compactness than the second.

Considering the interior of China, the strategic dominance comes to hand at once. This is the great northern Plain, watered in the main by the Yellow River and its feeders, and comprising the greater parts of the provinces of Hopei, Shantung, Honan, Hupeh, Anhui, and Kiangsu. This single plan is a veritable kingdom of approximately 350,000 square miles. It is characterized by extreme flatness of surface, by numerous rivers, generally shallow and fordable, and by the abruptness with which its mountain boundaries rise from its level. Armies can debouch into it and retreat from it by a number of passages. Its strategic value has continued unchanged down the years to modern times; for its great natural features have not altered, and the country's avenues of communication are the same in this day of modern transportation as they were at the time of the ox-drawn chariot.

It is on this Plain that the military destinies of China have been decided for centuries. It was over its face that the Chinese race slowly expanded when it first made its appearance on the stage of history. Considering it in its relation to the country as a whole, the obvious similarity to the position occupied by Flanders in relation to



the west of Europe springs to mind at once. Here, too, is a broad and level surface, easy of access and transit, in itself immensely rich and intrinsically precious to its possessors. Here is an area that invites to maneuver and to battle, one that is a rich prize for conquest. No wonder that this vast Plain has been for centuries the cockpit of China.

But the analogy does not hold good indefinitely. Flanders is small and easy of control. Its fate in the past has been decided on occasion by the shock of armies 20,000 and 30,000 strong, and its domination has generally followed easily as a simple consequence of military victory. On the other hand, the Yellow River Plain is so wide in extent that its mere administration as a military appanage requires extraordinary talents and organizing ability. It is easy to win a footing in this theatre, it is hard to obtain military control over its entirety, it is most difficult to make this control definitive and permanent.

The above statements are borne out by the entire military history of China, and strikingly so in the period since the 1911 revolution. Time after time militarists of varying abilities have been enticed out into the open Plain. Those who bid modestly for a limited portion of its area have been shouldered out by the bolder and stronger leaders who could assume the initiative and deliver attacks at will over a broad semi-circle of front. Two men, Yuan Shih-kai and Wu P'ei-fu, have controlled the whole area, but neither could consolidate his hold nor put absolutely trustworthy subordinates in charge of territorial subdivisions, and each in turn was defeated by attacks that debouched into the Plain through one of the great avenues of approach. The fighting of 1930 is only another instance of history repeating itself.

Thus from the Great Plain can be drawn two valid strategic generalizations. The more important cannot be put in positive form. To say that

Chinese Summer Palace

dominance of China proceeds from control of the Plain would be to ignore the revolts and conquests which have had their geneses elsewhere and which have swept down or up to the Plain as a final step to success. The most that can be affirmed is the negative statement that China, as a whole, cannot be dominated strategically except through consolidated possession of the Great Plain. The second generalization is the obvious one that, for dominance in the Plain to be effective, it must be complete and consolidated. Anything less is an invitation to invasion.

The unwieldy character of this strategic dominant brings into special relief the major avenues through which it may be approached. As noted above, the rebellions and conquests that eventually debouch into the Great Plain almost invariably have their geneses in the secluded hinterlands that are relatively distant from the Plain, and which, at the same time, afford room for handily large troop concentrations, have sufficient natural resources to support and finance armies, and which permit of easy descent at the proper time on the Plain itself. These major avenues of approach are seven in number, symmetrically disposed to the south, west, and north. By name they are the Hangchow area in Chekiang, the valley of the Kan River in Kiangsi, that of the Hsiang River in Hunan, all to the south and making contact with the Yangtze Kiang. To the west lies first the path of the Yangtze Gorges that leads into Szechwan, then comes the famous T'ung Kwan route into Shensi. To the northwest is situated the Nankow Pass region, especially sensitive because of its nearness to Peking, and opening out into the Mongolian plateau. Finally, to the north and east, is situated the easy, sea-level corridor that lies between the mountains and the sea of Shan Hai Kuan.

It must not be assumed that the above are the only breaks in the ram-

parts that surround the Plain. None of the mountain country is more difficult than the Pyrenees, and it can be penetrated in many places at the will of a sufficiently resolute commander As a matter of fact, however, these other avenues have been comparatively seldom used, except for purposes of demonstration. The appeal of the entrances enumerated is overpowering, both because of the ease with which they can be used and because their symmetrical disposition permits of their coordination.

Considering these major avenues of approach in order, the Hangchow area consist of a pocket of plain, bounded on the east by the sea, on the west by an intricate, but militarily weak tangle of streams and lakes and hills, and buttressed on the south by the Fukien mountains. Because of its lack of back country and of opportunities for organization in depth, it is strategically a weak position. The scene of much warfare in the past, it has usually figured as a place of last stands, when Chinese dynasties have been swept from the Great Plain. In modern times its importance has increased with the rise of the port of Shanghai, which lies, so to speak, under its guns, and which has given it splendid overseas connections, almost inexhaustible sinews of war, and not least, under the obtaining system of extraterritoriality, a secure harbor of refuge for defeated leaders. The area remains strategically weak, however, and since the Revolution has been dominated from the Great Plain whenever the latter region even nominally has been consolidated.

The two southern river corridors have much in common, geographically and strategically. They consist of broad valleys, running parallel north and south, for a distance of about 400 miles. Their geological constitution is identical, heavily rolling limestone country with navigable, canalized rivers flowing north throughout their entire lengths. Both give on the Yangtze on the north and on the broad and fertile basin of the West River in the south, in the latter case over very slight watersheds. They thus lend themselves readily to offensive movements, north or south, especially when jointly employed. During the Manchu dynasty these valleys were the most serious avenues of insurrection, combining as they did breeding space for revolt and easy access to the Plain. Thus the T'ai P'ing rebellion of the mid-nineteenth century had its inception in Hunan, and erupted from the Hsiang valley to defeat on the face of the Great Plain. It was up these avenues that the Kuomintang armies advanced in 1926-7 and eventually installed the Nationalist government in Nanking.

The next avenue to the west is the rough and scenically magnificent route up the Yangtze into Szechwan. While as blood-drenched in the past as the rest of China, this corridor has figured little as an avenue of descent upon the Great Plain. Szechwan, beyond the Gorges, is an empire in itself, and its rulers have been more concerned ordinarily in conserving their empory than in territorial expansion. This situation is confirmed in modern times by the difficulty of obtaining munitions in this province. In consequence the tide of conquest has usually set up the Gorges, rather than down the river to the Plain.

The Great Wall of China at Nankow Pass

Historically speaking, the T'ung Kuan pass, leading from the banks of the Yellow River into the province of Shensi, is the most ancient in China. Here it is that the Chinese people first emerge from the mists of legend. For centuries the capital of the country was located in its vicinity. In historic times the strategic value of the pass has waned, for with the progressive dessication of Central Asia a bulwark of arid and desolate plains has been reared to its west, making an approach to it in force over the uplands a serious matter. T'ung Kuan is thus rather an outward opening door to the domination of the plains north of Tibet than a passage to the invasion of the major strategic area. Its chief employment in the latter direction is in conjunction with pressure exercised at Nankow.

This Nankow area is the most interesting, strategically, of the group. The point of closest approach of the Mongolian Plateau to the Great Plain, its sensitiveness is attested by the location of Peking at its mouth. The peculiar value of Nankow is that it may be used as a pivot of maneuver, either in conjunction with T'ung Kuan or with the Shan Hai Kuan passage. The Nankow area is characterized by numerous passages into the level lands, but this advantage to the offensive is cancelled to a great extent by the rough and broken character of the country between the interior defensive crests of the mountains and the Mongolian upland. Historically, the Nankow passes have usually been points of pressure, of feints and raids, with the major efforts to reach the Plain developing through T'ung Kuan or Shan Hai Kuan.

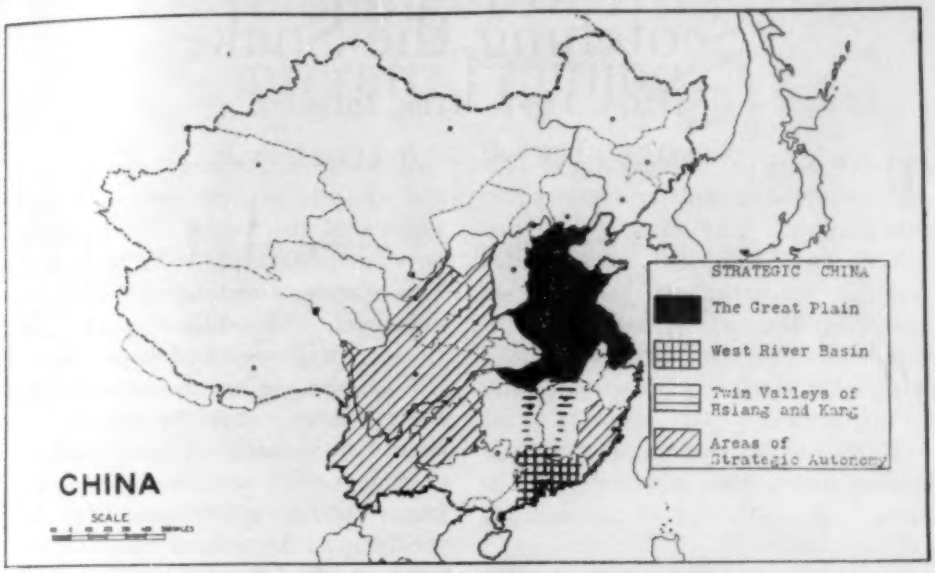
In connection with Nankow, attention must be given to the plateau province of Shansi. A mountainous region, with few entrances or exits, it seems designed by nature as a stronghold and an area of isolation. It is characterized by one important

strategic feature, however. This is the route extending from the Mongolian uplands at Ta T'ung clear south, some 350 miles, to the Yellow River plain in Honan. This route is a convenient alternative to the T'ung Kuan approach in conjunction with pressure exercised at Nankow. Furthermore, the possession of Shansi by forces based to the west assures them quick and convenient interior lines of communication. The whole province is thus of great assistance to eastward operations from the western plateau, and is a decided liability to a defense of the Great Plain.

Comes now Shan Hai Kuan, the royal road into the fat lands of North China. Here the mountains that compass China proper end abruptly, some five miles from the sea, leaving a broad avenue of entry, flanked on the west by several practicable passages through the mountains themselves. The chief virtues of the Shan Hai Kuan route as a path of invasion are that it is backed up to the north by a fertile plain that can subsist armies on their march, and that its level expanse offers no difficulties to transit. The region of the true pass, while the broadest and easiest route into China, is still so constricted as to permit the active use of only some 30,000 or 40,000 effectives at a given time. In consequence, major efforts to force this barrier must be made in conjunction with immobilizing attacks elsewhere, or with a treacherously or foolishly administered defense.

All the above has left out of consideration the water frontiers of the Great Plain. As a matter of historical fact, no major military effort has ever been made on this area from the sea. Certain foreign expeditions, based on sea-power, have landed on the Plain in modern times, but their objectives invariably have been limited, usually to the capture of Peking and the intimidation of the governmental powers centralized there. At the same time the fact must not be lost to sight that complete command of the sea offers opportunities for debouchement on the Plain. These opportunities are not confined to coastal ports, but include also the whole navigable length of the Yangtze River from Shanghai to Hankow. Armies based on sea-power and entering this stream have their points of landing and debouchment in the heart of China practically increased to infinity.

The Yangtze itself is a river of paradox. From the Gorges to the sea, its valley, which commercially is one of the most potent areas in the world, does not exist strategically. To the north it is differentiated from the Great Plain by a low divide which is hardly out of sight from its own banks. On the south its very size splits it up into the area bordering its estuary (which by attraction is to all intents and purposes part of the Great Plain) and into the valleys of the Hsiang and Kan, which have been considered already. Again, while its valley thus eliminates itself from strategical consideration, the river itself, practically alone among its peers, is a major strategic obstacle. It is so broad, so deep, and above all, its current is so swift, that it is unbridged; and even unopposed crossings by large bodies of men are fraught with dangers and attended by delays. Thus it is a perplexing obstacle to north-south movements, though a great avenue of east-west communication; and, granted sea-power, it is the eastern and southern door of the Great Plain.



The scope of this paper precludes more than mention of the great areas of strategic isolation or strategic autonomy in China,—namely Szechwan, Kweichow, Yunnan and Fukien,—though each is as large as populous, as wealthy, and as much of a prize for conquest as a European kingdom. There remains for consideration the basin of the West River, which forms in southern China a counterpart of the Great Plain of the north. Its size, however, is so much smaller that the difficulties to control that are encountered in the case of the Yellow River plain are minimized. Containing some 100,000,000 people, and reputed the wealthiest portion of China, this area is as though suspended from the Great Plain by the twin valleys of the Hsiang and Kan. These corridors, militarily speaking, run both ways, and there is no valid reason why northward operations based on the southern plain should not be conducted as successfully as descents southward from the domain of the Yellow River. Historically, this has not been the case. Northward movements have been rare, and successes few, although their feasibility has been proved as recently as 1926-27. The reason is probably that the great tides of conquest have usually swept in from the north, and have advanced into the West River basin after consolidation has been effected in the Great Plain. On the other hand, rebellions have usually taken form in the more secluded portions of the country, and having recognized their true objective, have headed for the Plain by the most direct route. Still, the conquest of the North by the South remains a valid concept, granted always that the control of the Plain is not secure.

This concludes a general study of China as a strategic whole. Even so brief an examination throws into relief the essential strategic unity of the country, the transcendent strategic importance of the Great Plain, the fact that de facto occupation and control of the whole country are absolutely conditioned upon effective control of that Plain, and that such control, if weakly exercised, is in itself a liability rather than an asset.

Scotching the Snake

CAPT. F. W. HYDE, Infantry

THE National Defense Act of 1920 provided a military policy for our country. Unfortunately circumstances have hampered or prevented the full execution of this piece of sound legislation. Among these circumstances are the recent activities of radicals in stirring up opposition to the R. O. T. C.

A recent incident at one of our leading universities serves well to illustrate the activities of the radicals and pacifists.

The president of the university invited a speaker from a national organization founded on the principle of soundness of body and soul to address the students. He expected to hear a talk that would add to the institution's policy of emphasizing good citizenship. The speaker's talk was so suitable, interesting and witty that the president invited him to speak again.

It was on the occasion of the return engagement that the real meat of the nut was found. The speaker dipped into a different bin this time, and instead of sound, sweet meats, brought out nasty, wormy ones. He attacked our government, its leaders and its policies; he praised Soviet Russia, championed the rebellion in Nicaragua and Mexico's attitude toward it, all to the disparagement of the United States and its policies. He did not mention the reasons for the action taken by our government. As a climax the speaker deliberately tried to incite the students to rebel against all such policies of the United States Government, and particularly the R. O. T. C. This was in direct opposition to the principles and policies of the university, and the speaker knew it.

What did the university authorities do? Believing that the best way to remove erroneous ideas from the minds of students, and in its straight-forward manner of facing a situation, this university invited the same speaker to return, explain his reasons for his radical utterances, and allow himself to be questioned. The University Students' Welfare Association extended the invitation.

On the arrival of the speaker for the third time he was permitted to talk freely. He did so, again entirely at the expense of the United States Government, its principles and policies, and without presenting anything but one-sided pacifistic reasons for his statements.

Members of the faculty and students then questioned him thoroughly. This resulted in bringing out the points of view of the President of the United States, cabinet officers, Congress and others.

The upshot was that the speaker modified several of his most drastic statements, and admitted finally that there was much he did not know about the subject and that the United States was at least attempting to safeguard the rights of its citizens.

The Development of Rifle Antiaircraft Training

MAJ. LEONARD R. BOYD, Infantry[1]
and
1st LIEUT. JOSEPH I. GREENE, 24th Infantry[2]

FROM time to time proposals have been presented in the INFANTRY JOURNAL and elsewhere on the correction of defects in the training system for rifle antiaircraft fire as prescribed in Tentative Training Regulations 300-5. Many of these ideas appear to be sound, and probably will be of material help in the evolution of the final training system. Many other schemes that have been offered as improvements on the training system already had been tested by the Department of Experiment at The Infantry School and found defective, in either their training value or their application to the training of large units, or else found to violate some of the tactical requirements for antiaircraft fire. It is realized that an article such as this might well have been published soon after TR 300-5 was published, in order to show why certain training features were discarded.

POSITIONS

One feature of the proposed training system which has brought forth many recommendations for change is the modified kneeling position for firing. Several suggestions have been made to substitute the standing for the prescribed kneeling position. In formulating the requirements for the antiaircraft firing position it was realized that the standing position afforded the firer the greatest degree of flexibility in quickly aligning the sights on a surprise target and in following a target moving at high speed. It is quite apparent that firing at a fast moving aerial target from a position in which the arms have a rest, such as

The Sitting Position Showing Maximum Elevation Without Removing Elbow from Knee

the normal sitting or prone position, can be used only in a limited number of cases. These will be discussed in following paragraphs. A series of extended tests, with groups of varied shooting ability, proved that firing at

[1]Formerly Test Officer, Department of Experiment, The Infantry School.
[2]Test Officer, Department of Experiment, The Infantry School.

a fast moving target from the standing position resulted in the greatest accuracy. Then entered the tactical aspect of firing. It was found that the average man, standing, and facing the direction of fire of the airplane, presented 5.6 square feet of vulnerable surface; when kneeling the area was reduced to 3.5 square feet, sitting

The Sitting Position
Maximum Elevation

2.25 square feet, and prone 1.5 square feet. Thus the chances of a man's being hit while in the kneeling, sitting, or prone positions are respectively 62 per cent, 40 per cent and 25 per cent of his casualty chance in the standing position. On the other hand, the standing position resulted in but slightly more accurate firing than the modified kneeling position (both elbows free, etc.).

In considering the prone position for antiaircraft fire it must be obvious that there is small opportunity to use this position to advantage unless the target is very low and approaching the firer. In such cases there is little or no relative lateral movement of the target.

It is evident, also, that it is very desirable to subject the attacking aircraft to as accurate fire as possible before it reaches effective bombing range, which is about 150 yards from the striking point of the bomb when the altitude of the airplane is below 100 feet. And, as pointed out before, the casualty chance from aerial fire will be reduced by 75 per cent if the unit is in the prone position rather than the standing.

Men who are 100 yards or further from the road cannot use the prone position with both elbows on the ground, as the relative lateral movement of the approaching target is too great to permit following it. These men, then, must fire from the modified kneeling or sitting position in order to have the required flexibility of position and to present the minimum target to enemy's fire. Moreover, the relative vertical movement is very slight and gradual until the target is quite near the firer. Thus, if a plane approaches over approximately level ground at an altitude of from 50 feet to 100 feet in the manner now considered most effective for attack aviation, the angle of site increases as shown in the table on the following page.

A simple experiment, in which the riflemen takes the prone position without sling and the angle to which he can raise his rifle and aim without great strain is measured by a machine gun clinometer, will show that any man can fire at objects ten degrees above the horizontal, and that, in

TABLE SHOWING INCREASE OF ANGLE OF SIGHT ON APPROACH OF PLANE

Slant Range to Plane	*Angle of Site To Plane Flying 50 Ft. above Ground*	*Angle of Site To Plane Fying 100 Ft. above Ground*	*Time Plane Required To Reach Point Over Firer at 150 mph.*
1500 yards	0.6 degrees	1.3 degrees	20.4 seconds
1000 yards	0.9 degrees	1.9 degrees	13.7 seconds
900 yards	1.1 degrees	2.1 degrees	12.3 seconds
800 yards	1.2 degrees	2.4 degrees	10.9 seconds
700 yards	1.4 degrees	2.8 degrees	9.6 seconds
600 yards	1.6 degrees	3.2 degrees	8.2 seconds
500 yards	1.9 degrees	3.8 degrees	6.8 seconds
400 yards	2.4 degrees	4.8 degrees	5.5 seconds
300 yards	3.2 degrees	6.4 degrees	4.1 seconds
200 yards	4.8 degrees	9.6 degrees	2.7 seconds
100 yards	9.6 degrees	19.2 degrees	1.4 seconds
50 yards	18.7 degrees	37.4 degrees	0.7 seconds

many cases, 15 or 20 degrees can be attained. From the above table it is evident then that the prone rifleman would have no difficulty in keeping his sights on the low-flying target until it is almost overhead. During most of the approach, in fact, the angular movement of the target would be so slight that the target would appear to be stationary except for its increasing size. In open terrain where the attacking planes could fly lower than 50 feet above the ground, the target would come even closer to target range conditions.

The fact that attack aviation, if it follows its present tactical methods, will present such targets to almost any marching column that it attacks, is a strong basis for the argument that all firers should take the prone position for all firing when terrain and angle of site permit.

A comparison of the modified kneeling and sitting positions shows that each has desirable points. First, the sitting position results in the greater safety to aerial fire, being 35 per cent safer than the modified kneeling position. In opening fire at long ranges it is probably somewhat more accurate, inasmuch as the elbows can be rested on the knees and the body of the firer is more stable than in the firing position. However, as the target approaches overhead and the firer must elevate the rifle and raise his elbows from their normal support, there is

The Kneeling Position Showing Maximum Elevation Without Removing Elbow From Knee

little to counteract the recoil of the piece, whereas the body in the kneeling position can be braced against this force. It is not an uncommon sight to see firers in the sitting posi-

tion lose their balance when firing at high angle targets and fall over backwards. This is practically impossible from the kneeling position. Another point in favor of the kneeling position is that it can be taken somewhat more quickly than the sitting position.

THE TARGET-LENGTH LEAD METHOD

The principle of leading through the target is the basis for the entire system of antiaircraft rifle training. A discussion of the various elements of leading may prove of value. The passage of the sights from the center of the rear of the target to the center of the front, and thence along this line in front of the target, ensures that the bore of the rifle is aligned approximately along the path of flight of the target, provided that the target makes no sudden change in elevation and direction. Moving the sights along the target axis tends to establish the unit of lead measurement—the target-length—in the firer's mind, both visually and by the element of time consumed in the passage. Then, when the firer's sights have reached the desired number of target length leads he maintains this distance while he squeezes the trigger, and with his rifle moving at this constant speed he should not vary its alignment no matter whether his trigger squeeze is long or short. On the other hand, a "jerk" of the trigger will cause even greater variations in accuracy than in firing at a stationary target.

A few observers of the training system of T. R. 300-5 have stated that the target-length lead system is too involved for assimilation by the average enlisted man. It may be of interest to know the method followed in the formulation of the tentative training system. The final test of the system was made by an average platoon of the 29th Infantry—average in shooting ability and in intelligence. One-half of the men were expert riflemen, sharpshooters, and marksmen in average proportions, while the remainder were unqualified, and were either new men or those who had failed to qualify in previous range seasons. Some of these poor shots were distinctly below the average in intelligence. The progress of these men was carefully watched, and although their scores fell below the group average they learned and understood the reason for leading the target and what was meant by target-length leads. All the men were required later to fire with leads expressed in feet, and after that in inches. In both cases they scattered their shots so widely that it was apparent they could not use a unit of ordinary measurement in antiaircraft firing. Observers who witnessed these and similar firings were unanimous in the belief that the target-length lead was superior to any form of lead expressed in feet or yards.

THE USE OF SIGHTS

There have been numerous advocates of using the rear sight leaf to set off lead in vertical firing exercises and combat firing, rather than the method prescribed in the tentative regulation. It is quite simple to compute the sight graduation necessary to give a certain linear lead at any slant range. And, when the ordinarily variable factors of flight, such as target speed and slant range can be controlled, as in a set towed-target practice, this method will give some superiority in hits obtained. It is fairly obvious, however, that the elevation of the drift slide must be fixed prior to the appearance

of a combat target in order to open fire upon it soon after it comes within range. This method might still be of value were it not for the fact that in combat many firers will be required to take both vertical and lateral lead (e. g. in firing at targets whose course of flight is not parallel or perpendicular to a plane through the shoulders of the firer) and the rear sight leaf, raised, does not lend itself for this type of firing. The narrow channel for the drift slide does not allow sufficient view of the target to combine vertical and lateral lead. In fact, the target is obscured in most such flights by the two bars that form the leaf. Firing tests were conducted by the Department of Experiment at Fort Benning in 1927, in which the method prescribed in the tentative regulations was compared to that of setting off a fixed elevation on the rear sight leaf and holding on the target, instead of leading through. As might be expected, the latter method resulted in a higher percentage of hits when the target was towed at a prearranged speed, elevation, direction, and slant range. However, when the pilot of the towing plane was given the option of the four elements mentioned above, and all sights set for an "average" lead the sight leaf method of firing proved to be practically worthless. The cone of fire, as shown by the tracer bullets was uniformly smaller than that which resulted from the "follow through" method, but the cone of fire was seldom near the target except when the sleeve was nearly overhead and at low elevations.

The battle sight and the open sight on the sight slide are not well suited to antiaircraft fire, even when the target is directly approaching the firer. When the front sight is centered in the "U" notch of the rear sight the entire bottom half of the field of vision is blocked out, and it is somewhat difficult to align the sights on the top of the target, and alignment necessary against low-flying, approaching targets. The hasty aim required in antiaircraft fire usually results in a

The Kneeling Position Maximum Elevation

"coarse" sight being used. Thus the amount of elevation (lead) vertical lead that each firer takes varies considerably. The sights on the M1903 rifle were designed for accurate fire at stationary or slowly moving targets and are not considered desirable for

game hunting. It is interesting to note that most rifle hunters of moving game prefer a sight with an open field and a circular rear sight in which the front sight can be centered without obscuring the field of visions. As the factors that affect antiaircraft firing with the rifle are quite similar to those of game hunting, it follows that any rifle sight designed primarily for antiaircraft fire must have an open field of view. In addition it should be provided with both a top and a bottom reference point for the adjustment of the front sight.

Inasmuch as several writers have

Prone Position
Maximum Elevation

mentioned the desirability of a rifle antiaircraft sight which would be fully suitable for all types of antiaircraft firing, it may be of interest to see the results of test firing with an improvised sight in 1926.

Preliminary firing brought out the difficulty encountered by the firer in estimating a large number of target-length leads and in holding his sights at a constant and also considerable distance ahead of the target while he squeezed the trigger. A simple sight was devised to establish the relative accuracy of fire of the "follow through" method and of a method in which the firer aligned his sights on the target. This sight consisted of a bar extending three-quarters of an inch on each side of the front sight; a raised aiming point at the extreme of the bar provided a lead of 70 feet at a minimum slant range of 1200 feet when the target was passing parallel to the front of the firing line. For a target speed of 90 miles per hour and at 1200 feet range this lead was theoretically correct. A platoon of riflemen was equipped with these sights and several courses were fired using the sight. This group then fired again, leading the target five target-lengths. The comparative results were as follows:

Average of all flights with sights—5.1%.

Average of all flights—leading—1.2%.

These figures indicate the desirability of using a firing method whereby the sights could be aligned on the target while the trigger was being squeezed off. But such a sight, of course, had the same weakness as the rear sight leaf in vertical flights—it was accurate for but few of the many variable flight conditions. In addition it was not designed for oblique flights.

The development of the Boyd-Greene antiaircraft sight for the caliber .30 machine gun suggests a sight of similar design for rifle antiaircraft fire. A study of this sight is now being made to ascertain whether the basic idea can be applied to rifle antiaircraft fire. The development work, to date, has not progressed sufficiently to draw any conclusions, but there appear to be no reasons why such a sight is not practicable, in respect to both the technical delivery of fire and its tactical use.

A consideration of the mechanics of opening fire after troops are in suitable firing formation points rather clearly to the impossibility of the unit commander's (squad or higher) making an approximately correct estimate

of the target speed, slant range, and angle of approach, computing the required lead from these factors, announcing the lead to his unit, and giving the command to open fire before the aircraft had completed their mission of destruction and were well out of range.

ALTERNATE METHODS

One alternative is that of having each firer estimate his lead and fire accordingly. When we consider the ability of the average soldier and the limited time which will be allowed for antiaircraft training and, too, when we consider the difficulty that the human mind has in working under fire, this method does not appear to be practicable.

There appears to be but one method sufficiently rapid and simple to fit combat conditions, which, if followed even approximately, will result in a cone of fire that will include the target under a wide range of variation of speed, slant range and direction of approach. This method, which is explained in paragraph 37, TR 300-5, consists of combined leads, and the assignment of such leads prior to the entry of the unit into the possible zone of air activity. A more detailed description of the application of this fire method may illustrate its adaptability to combat use.

The objection immediately suggests itself that such a method is wasteful of ammunition in that 70 per cent of the shots fired (even if the elevation and leads are correct) will miss the 30-foot fuselage of the airplane. Here, again, we must weigh the requirement of accuracy of fire against that of the immediate opening of fire on the appearance of the plane. And it is believed possible to train the average rifleman so that he can decide, under combat conditions, whether the airplane is coming straight at him or otherwise; if the former, to aim at the top of the fuselage; in all other cases to fire with the lead corresponding to his number in ranks. Thus the unit commander can be certain that any aircraft that makes an attack on the column will be placed under fire within one or two seconds and, whatever the speed, slant range, and direction of approach, the planes will be covered by fire.

This article will be followed by a second article in which still other developments and suggestions concerning antiaircraft rifle fire will be discussed.

Coordination of Our National Strength

Col. S. C. Vestal, C. A. C.

THE World War has demonstrated the position of power and prestige which the United States holds, willingly or unwillingly, in the world in which we live. When Congress passed the bill on April 6, 1917, declaring war on Germany, few of our people recognized the point of vantage which the United States occupied in the world at that moment. She had been placed in this position through no conscious act of her own. For more than two and a half years all of the other great nations of the earth had been divided into two great hostile military alliances engaged in a deadly and very nearly evenly balanced conflict. At any time during this struggle it lay within the power of the United States, by entering the contest on either side, to bring victory to the side whose cause she espoused. Never before in the history of the world had a nation been put in such a position of power and prestige.

She owed her position of vantage to the fact that she had long and consistently followed the precept of Washington to steer clear of any permanent alliance with any part of the foreign world. If she had implicated herself by artificial ties in the ordinary vicissitudes of world politics or the ordinary combinations and collisions of friendships or enmities, she would never have been in the advantageous position which she occupied from the outbreak of hostilities in 1914; for the tendency of mutually hostile nations to form two equal and nearly evenly balanced camps is too well known to require demonstration.

When we entered the war, many believed that the financial and economic aid, and the assistance which our belligerency would lend to the blockade of the Central European powers, would incline victory to the side of the Allies, without the necessity of our active participation on the battlefields of Europe. It was only gradually that America learned that the issue of the war depended upon the action of American soldiers upon the Western Front.

When the French Commission, headed by General Joffre visited the United States, shortly after we entered the war, the higher officers of our government learned for the first time that American divisions were sorely needed to bolster up the Allied cause in France; but the French themselves were unaware of the great trial of strength which was to come on the Western Front in the following Spring. It took the great German drive of March 21, 1918, to awaken America to a realization of the situation into which she had been unconsciously drifting.

When the crisis was over and thoughtful Americans were at liberty to look about and take account of things, they perceived that America had neglected to follow the requirement which Washington laid down as a prerequisite to their steering clear of permanent alliances. I shall quote the words of Washington: "Taking care always to keep ourselves by suitable establishments on a respectable defensive posture, we may safely trust

to temporary alliances for extraordinary emergencies."

We had followed the easy part of Washington's Farewell Address and had most carefully steered clear of any permanent alliance; but we had neglected that part of his address which demanded effort and preparation.

The events of 1917-18 brought a new vision into the lives of Americans. The bitter, hard doctrine of efficiency, the cold, merciless logic of conquest descended like an east wind over the world. After America's entry into the war, the French were defeated under Nivelle; Italy was crushed; the Fifth British Army was overwhelmed; and the French front was driven in west of Rheims. The spectre of defeat walked time and time again over the battlefields of Italy and France. America saw it; and the recollection will not soon be effaced from the minds of the present generation of her people. The answer was preparedness. Congress addressed itself to the task of providing a suitable establishment; and the result was the National Defense Act of June 4, 1920.

The experience which we had gained by our participation in the World War had thrown a flood of light upon the things which we should do in order to place ourselves in a respectable defensive posture. Young America imbibed a new faith. It manifests itself in action when the youth of the land comes out each year for its annual training in the Citizens' Military Training Camps and the Reserve Officers' Training Corps.

We are now carrying into effect the provisions of the National Defense Act of 1920; and as we gain experience, the question often presents itself as to whether we would ever have had to face the extraordinary emergency of 1917-18, if America, through the long years of her history, had followed all the wise maxims laid down in Washington's Farewell Address. This is a question upon which opinions will differ; but the answer to it is of immense import as a justification of our present and future efforts in carrying out the provisions of the National Defense Act. I am firmly convinced our surest and most certain guarantee of peace in the past lay always in taking care to keep ourselves by suitable establishments on a respectable defensive posture; and that it is the surest and most certain road to peace in the future.

The National Defense Act enacts that the Army of the United States shall consist of the Regular Army, the National Guard while in the service of the United States, and the Organized Reserves, including the Officers' Reserve Corps and the Enlisted Reserve Corps; and it makes the Army the great co-ordinator of our national strength.

The War Department was originally charged with all the functions of government connected with the prosecution of war, both by land and sea, as its name implies. As the government grew and specialization became necessary, certain functions were taken from it and given to other departments or bureaus. Thus the Navy and the Interior Departments, the Bureau of Public Roads, and the Weather Bureau all sprang from the parent War Department, which still remains, however, the great residuary department of the war-making functions.

Certain functions carried on by super-agencies during the war, such as Industrial Preparedness, which was under the War Industries Board in the World War, are entrusted to officers or bureaus of the War Depart-

ment during peace. Other functions, like the draft, which is in abeyance until revived by act of congress on the outbreak of war, are entrusted to the War Department or to the Army for study and preparation of proposed legislation.

When war comes and the draft, by special act of congress, goes into effect, it must furnish men not only to the Army but also to the Navy and to Industry. For obvious reasons it would not be proper for any one of these departments to exercise the draft, furnishing to the other departments their quotas of men. Hence it was found wise, when we entered the World War, to entrust the operation of the Selective Service Law to a special bureau, the Provost Marshal General's Office, acting directly under the President of the United States, at the head of which was placed an officer of the Army. When the war was over, the records of his office were turned over to the War Department; and the functions of the Provost Marshal General in time of peace are carried out by G-1 of the War Department.

In the World War the great powers of the President over industry were exercised by the War Industries Board. This was a great super-agency of the government, which was under none of the administrative departments, and which was, in a way, over all of them, since all of these departments were dependent upon the War Industries Board for all of their supplies.

The story of the War Industries Board is one of the most wonderful chapters of the history of America's participation in the World War. The simplification and mechanization of American industry in the last half century, and her inexhaustible stores of raw materials, have given her a power in war unparalleled in any other age or country. The War Industries Board took control of America's industries, both great and small, and marshalled them for the service of the government. The Board was composed of captains of industry; but it had at its service military and naval men who pointed out the ends to be attained; and the Board drove without faltering, fear, or favor, at the main objective.

The records of the War Industries Board are deposited with the War Department, and the National Defense Act of 1920 charges the Assistant Secretary of War with the "assurance of adequate provision for the mobilization of material and industrial organizations essential to war-time needs." Thus in time of peace the Assistant Secretary of War is charged with making the necessary studies and plans to enable a new War Industries Board to begin operations in the event of a national emergency of sufficient gravity to call it into being.

In no other way is the Army's role as the co-ordinator of our national strength manifested in a clearer light than in the provisions of the National Defense Act which make it the duty of the Regular Army to train the other contingents of the Army, that is, to say, the National Guard and the Officers' Reserve Corps.

In formulating the provisions in the Constitution relating to the militia, it was the intention of the members of the constitutional convention of 1787, that the militia should be a national force in federal pay, under the control of the respective states, except when it was called into the service of the United States.

Congress never exercised its power to provide for the militia, or National

Guard, in a material way, by providing pay and other emoluments in an annual appropriation act, until it passed the National Defense Act of 1916. It is true that it gave occasional doles to the militia; but the aid was so small that it did not entitle the United States to exercise any real control over the National Guard. Prior to 1916, the militia of the various States was in no way a national force any more than are the state constabularies today. With the passage of the National Defense Act, the effect of the change of policy was seen in an increased efficiency of the militia; the relation of employer and employee was quickly and naturally established; and the term National Guard, as applied to the militia, ceased to be a misnomer. In the World War, National Guard divisions as such appeared upon the battlefield for the first time in our history.

The National Defense Act of 1920 came to reinforce and strengthen the policy initiated by the National Defense Act of 1916 of making the National Guard truly a national force, with an increase of pay, increased numbers of officers of the Regular Army on duty with the National Guard, and increased facilities for the participation of National Guard officers in the advantages of service schools of application. The National Guard organizations are recognized as first line troops; and no efforts are to be spared to make them so in fact.

The Organized Reserves, including the Officers' Reserve Corps and the Enlisted Reserve Corps, are raised, not under the miltia clauses of the Constitution, but under the power of congress to raise and support armies. So long as the militia received practically no aid from the federal government, there was a natural barrier to the formation of a Reserve Corps, either of officers or of men, directly under the federal government. But when the intention of the framers in regard to the militia was carried into effect, there was no reason why a national reserve of officers and noncommissioned officers might not be formed for the purpose of officering the unorganized reserve, upon which we must draw for men in case of a great national emergency. The barrier vanished; and the Officers' Reserve Corps and the Enlisted Reserve Corps sprang into existence.

One of the most impressive lessons of the war was the necessity of having a large reserve of officers, in fact, of training as reserve officers, all the men whose age and capacity fit them to be officers. The mobilization in one country (Italy) was limited during the World War, not by the number of men available to fill the ranks, but by the number of men qualified by natural capacity to be officers.

As long as the American people abide by the spirit of the Declaration of Independence, it may be expected that they will use their influence, as in the past, for honorable peace and justice to all men. Such influence, however, will be effective only so long as they retain their freedom to choose peace or war and remain a power with which ambitious nations must reckon. The military power of a nation lies in the potential strength of its citizens; but unless this potential strength, in the event of an emergency, may be converted into active fighting strength, it is of no avail. Hence the importance of our Army as the sentinel of our security and the co-ordinator of our national strength.

The Infantry Compass

1st Lieut. Joseph I. Greene, 24th Infantry

The Prize Winning Article from the 24th Infantry

THE problem of finding a suitable magnetic compass for infantry use is an old one. There has been much official correspondence on this subject since the World War. The Department of Experiment, The Infantry School, has conducted four tests involving several different types of compasses. In addition there has been considerable experiment outside of the military service. Up to the present, however, we seem to be a long way from finding a compass that is satisfactory to the varied needs of infantry.

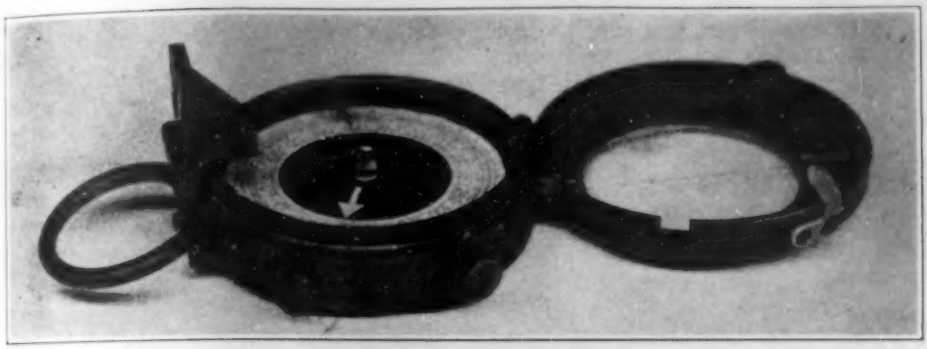
It is desirable, of course, from the standpoint of simplicity of both supply and training, to have only one kind of infantry compass. But when we consider the requirements we see that we can hardly expect a single type to be entirely satisfactory to everyone; the needs of the rifleman, the machine gunner, and the howitzer gunner must all be filled. Nevertheless, one model for the use of all is not an impossible attainment, although it may be necessary in designing such an instrument to compromise a little.

Let us now enumerate the general requirements of an ideal compass for infantry. It must first of all be accurate; like a watch that does not keep time, a compass that gives incorrect readings is worse than none at all. It must be durable in accuracy and in structure also, in order to stand the rough treatment of combat conditions. At the same time it must be small, compact, and light. It must be quickly and easily readable to a certain degree of accuracy. It must have durable luminous points for night uses. It must be simple to operate so that the average enlisted man can learn to use it. And finally, the instrument must satisfy the specific uses of all infantrymen.

There are two types of compasses now used by infantry organizations. Neither of them is quite satisfactory for the particular uses for which it is issued. They are even less suitable for all around purposes. These present types are the so-called prismatic and lensatic compasses. Their names are incomplete designations, because in classifying compasses a more important distinction than the kind of reading agency (lens or prism) is the type of medium in which the compass proper is suspended within its box. Through long-standing usage of the words "lensatic" and "prismatic," the majority of us think of a liquid-filled compass when we hear the first word, and of an air-filled compass when we hear the second. For the sake of accuracy we shall give these instruments their full names in this discussion and call them the "lensatic liquid-filled," and "prismatic air-filled" types.

The lensatic liquid-filled compass is now issued to machine gun and howitzer companies, and the prismatic, air-filled type to rifle companies. The former is graduated in degrees and the latter in mils.

We shall now discuss in turn the principal elements of compass design. In so doing we shall discover the good and the bad attributes of the present



The Prismatic Compass

models, and in the end arrive at a type that will be more satisfactory than either of these.

Considering first the means by which compasses may be read, we find that neither a lens nor a prism is absolutely necessary. A number of compasses were in use during the World War which were read by the eye without other assistance. A magnifier, however, permits greater accuracy of reading for the same size of compass dial. Of the two types now in use, the prism has the greater magnifying power. But more than balancing this point in its favor, the prism must be set so close to the dial that the field of view through it is very narrow (about 200 mils). Moreover, because the prism reverses the image, it requires the use of a reversed scale on the dial. Then, if the compass is to have a scale for direct reading,—a very desirable feature—, there must be two scales on the dial. This double scale makes for confusion and error when read through the narrow field of the prism.

A further complication enters when we remember that an all around infantry compass must be scaled in both degrees and mils. Here we add one more dial scale, the indirect mil scale, to the confusion. (There is little or no need for a direct mil scale.) In a recent test by the Department of Experiment it was found that such a dial for the issue prismatic air-filled compass was indeed confusing. The dial, 1.78 inches in diameter, with the three scales, two of them visible through the prism, required careful selection and thought on the part of the user. Not only would such a complicated dial cause errors in reading, it would also present a difficult problem in the instruction of enlisted men.

The prism, furthermore, requires careful adjustment for eyesight. This adjustment can not be made without tools.

On the other hand, the lens has a large field of vision (about 1400 mils), requires only the dial scales used for direct reading, and needs only a slight pressure of thumb and forefinger to adjust it. The lens, on the whole, is much the better reading agency.

Let us now consider the more important element of a hand compass, the filler. As we have seen there are two types of filler, air and liquid. At first thought the liquid filler seems superior. It steadies the dial and greatly reduces its oscillations. This in turn reduces the time in which the dial comes to rest. The dial of the

lensatic liquid filled compass now in use becomes still in six or seven seconds.

Against this big advantage, however, we have to weigh several greater disadvantages. First, no liquid filler has been developed that will not evaporate and cause bubbles to form within a few months. These bubbles interfere with reading the dial, often making it impossible. They also destroy the accuracy of reading by throwing the dial out of proper balance. Errors as large as 400 mils are frequently caused by this bubble accumulation, thus making the instrument worse than useless. Again, no liquid filler has been found that will not discolor the dial. A number of combinations have been tried, but none seems to work. In a few months or a year the dial becomes dark and splotched with discoloration due to the chemical reaction of the liquid and the metal dial.

Even if a suitable, non-evaporating and non-discoloring liquid could be found for use as a filler, there is a third disadvantage almost as great as the other two. The liquid filled compass must be held level in order to obtain accurate readings. The compass now used by machine gun and howitzer companies is equipped with a leveling bubble. Its correct use demands care and precision of leveling before a reading is taken.

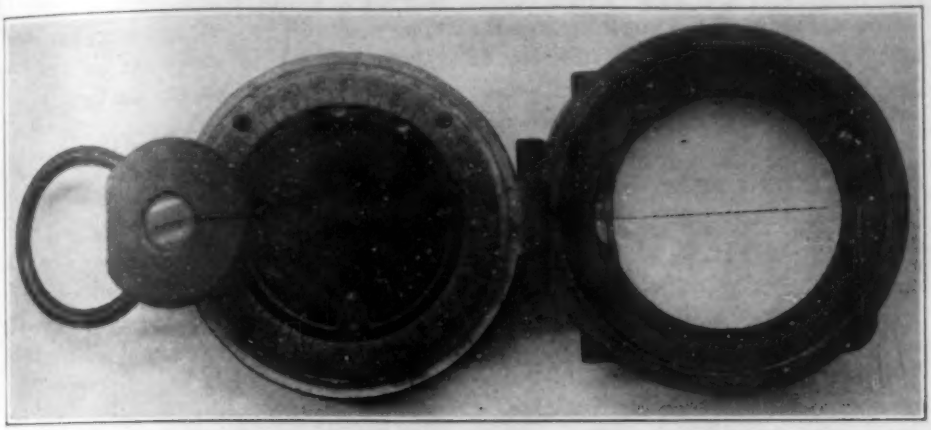
Finally, if the glass of a liquid filled compass is accidentally broken, the instrument no longer can be used.

None of these disadvantages is present in the air-filled compass. There are no bubbles or discoloration. It is not necessary to hold the compass so exactly level for reading as the liquid filled type. The iridium point and jewel bearing permit a considerable departure from the level without loss of accuracy. Moreover, if the glass cover is broken the compass will still work.

But there is one maddening defect in the air-filled compass that rifle companies now use. Its dial is so delicately balanced and swings so freely that half a minute or more elapses before it comes to rest. Besides, when this compass is held in one hand for taking a bearing, great care is necessary to prevent the natural tremors of the body from disturbing the equilibrium of the dial. Thus, when the additional tremors sometimes concomitant with combat conditions are borne in mind, and the possibility of a high wind is also considered, there are times when it is impossible to use the present air-filled compass.

There is provided on this instrument a push-pin stud which actuates a dial brake or damping device. Unfortunately this is an aggravation rather than a help. It is small in diameter (0.075 inch) and the spring steel of which the damper is made is very stiff (1.5 pounds pressure is necessary to operate it). If this pressure is successfully applied without disturbing the equilibrium of either the dial or the temper of the user, the taking of only a few bearings will come close to puncturing the skin of the forefinger.

Not long ago a field officer delivered an opinion on the proper type of infantry compass to the following effect, "What we need is a compass that a battalion commander can use while he's on the back of a horse. He wants to be able to take a night bearing without dismounting, so that he can check up on the direction of march. The air-filled compass is no good at all for that." It is not hard to imagine the major in the black of night, trying to steady his animal with one hand, hold-



The Lensatic Compass

ing the compass in the other, and endeavoring to exert a pound and a half of pressure on a surface of .0044 square inches with the forefinger of his rein hand. It is reasonable to assume that in many instances of the kind the scene was ended by the major's throwing the compass farther than George Washington threw the silver dollar.

It is doubtful whether anything short of an airplane gyroscopic compass would be trustworthy for taking bearings while mounted. Certainly neither of the present issue compasses can be used accurately in such a position. In addition, so important a matter as a line of direction is best obtained from the firmest stance possible.

There is, however, a partial remedy for the awkwardness and difficulty of operating the damping device on the prismatic, air-filled compass now used in rifle companies. The spring may be made less stiff and a button can be put on the push-piece stud that actuates it.

In the course of a series of compass tests the damping spring resistance was reduced in various degrees on several instruments. One that required 0.3 pound (one-fifth of the pressure normally needed) gave best results. A slight pressure of the finger brought the dial to a halt. With no practice at all the reading time was reduced to 20 seconds from 35, in the standing position. Furthermore, the use of the damper did not disturb the muscular concentration on balance that is necessary in reading a compass while standing.

When everything is considered, we can arrive at only one conclusion regarding the filler for compass: atmosphere is best until we find a liquid filler that will preserve both the dial and itself. And thus far we must also conclude that a lensatic air-filled type is superior.

But what kind of a dial should we have? If we employ the lens, only direct scales will be necessary. If our compass is for general infantry use we shall want both degree and mil scales. Under existing training regulations the Infantry uses two ways of dividing a circle into fractions.

As a matter of fact do we need them both? There is a division of opinion on this question, with a majority in favor of keeping the two of them. The

others see no need for anything but the mil. For one, I feel that the use of the two methods is a duplication of effort in instruction, and that the mil, which has become indispensable to the machine gunner and others, may just as well replace the degree in map making, night marching, musketry and everywhere else.

One argument that is frequently made in behalf of the degree is the fact that recruits in general, and emergency recruits in particular, have a certain familiarity with the degree, whereas they know nothing about the mil. No doubt this is true, but it is also true that the word "degree" has several meanings other than 1/360 of a circle, some of them better known to the average recruit. It refers to points on the thermometer, perhaps its commonest usage. It has also a vague meaning of proportion or measure. It conveys certain other senses in grammar, geneology, algebra, and arithmetic. In law we hear of murder in the second degree. Finally, degrees are given to college graduates.

The word "mil" on the other hand has one meaning. Its exclusive use would avoid all confusion and make for greater clarity than now exists. The instruction of recruits would begin in a fresh field.

As to the necessary features for the night uses of the compass, there is also some difference of opinion. The rifleman may get along well enough with simply a luminous pointer on the dial, and luminous direction points on the rotating band and cover. These suffice for night marches and for taking the direction of a single gun flash or anything else visible, although a light is necessary for reading this set direction on the outer scale of the cover. The machine gunner, however, hankers for luminous dial markings so that he may lay his guns on the darkest night without using a flash light. The suggestion has been made that a suitable compass should have luminous figures and divisions on it.

The only way we can have a completely luminous compass dial is to use one several times as large as that used in the issue types of compass. Luminous paint can not be used for very thin markings and, besides, its luminosity is not durable when very slight quantities are employed. As the use of a large dial is at present unnecessary for any other reason and would entail greater manufacturing costs, a fully luminous instrument may be considered out of the question. The luminous divisions on the rotating band of the present lensatic liquid filled model permits readings to a 200-mil accuracy only. Errors this large almost prohibit the use of these luminous spots for taking bearings. Certainly they are too great for laying machine guns.

In conclusion, let us outline the type of compass that best approximates the ideal infantry type. Such an instrument will be an air-filled lensatic compass, about the size of the present air-filled prismatic model. It will be equipped with a luminous north pointer and luminous markings on the rotating band for night uses. It will have an efficient, easily operated damping device. Its dial and its outside cover will be graduated in degrees and mils. This compass will be the best that can be devised until a non-corrosive, non-evaporating liquid filler is discovered, and even then, the air-filled compass is likely to remain the most durable and accurate type.

Extra Duty Doughboys

CAPT. CLINTON W. BALL, C. E.

THIS is a tale of hard work, a few brains perhaps, but first, last and always, hard, dirty, sweaty, knuckle-barking work. It deals with the doings of certain engineer outfits in the Mense-Argonne fracas during September and October, 1918. That's where they earned the title "Extra Duty Doughboys."

Why General Pershing picked or was handed this particular part of France does not concern us, though liberal slices of it had to be remodeled for the big show. In addition to the larger woods the area between the two rivers is full of ridges running in an eastwest direction, with plenty of small forests and bush thickly scattered about. Much of it had been overrun by the Germans since 1914, and the forests were not the carefully marcelled kind that we meet in other parts of France. All the towns were connected with roads except in the Argonne where there were mostly overgrown trails.

All the old outfits were there, and a lot of new ones. They had about ten days' warning to get into position after St. Mihiel. All this getting into position had to happen when Jerry wasn't looking. That meant night marches, stay in the woods all day, cold meals, sketchy sleeping and, in general, plenty of work for the Foot-slogger. Every time the kitchen was lost a lot of men went hungry, and staff and line explanations to an empty belly didn't go over very big. Getting into line and jockeying for position was a nice little workout. The roads needed smoothing, the generals needed digging in for any camp a day old, and there was plenty of artistic work for the "Specialist" to do. While we were all getting set, a thin line of Frenchmen held the front until the whistle blew.

Jerry knew that he was going to get something, but he didn't know how much. He made a fair guess and started to muss up the ground. It was bad enough to start with, but he threw in more wire, mined the roads and culverts, and got ready for company.

Map reproduced from "The American Army in the European Conflict," by de Chambrun and de Maronches.

Now each of these little outlined blocks on the map represents about 27,000 men, and when you throw in

behind them all the corps and army artillery, ammunition trains, rations, engineers, field hospitals, and chaplains you get an outfit nearly three times as large as Washington, D. C. Put that many people out in the open and they clutter things up. They all get thirsty, mill around a lot, and holler for the engineer to fix this and that. It's his job to see that they are satisfied. As long as he does, it's alright and the general smiles and thinks of how he has kept up the morale of the division in these trying times. Maybe so, but his division's morale is based on the functioning of his public utilities. They need not be perfect, but they must be as good as in any other division. Beans, biscuits, and beef will make the men fight. Now an awful lot of this depends on planning and work by the engineer. In war the work increases as the planning decreases.

All set. On the morning of September 26, the Infantry stepped out into the blue. It was raining all along the line, as usual. The first day was easy; Jerry put up a scrap here and there, but was mostly interested in getting back on higher ground around Montfaucon. He felt that he was on the run and the jig was up. Bulgaria, Turkey, and Austria were counted out, but he had a lot to take care of. Our tactics were fairly primitive. We had plenty of men and shells, and we just slammed ahead. Where the going was hard the division fronts were narrow; and where it was easier, we spread out more. As soon as a division was shot, it was pulled out, given a rest and replacements, and sent back into the scrap. That is, the fighting men were. The engineers and artillery usually stayed where they were as corps troops or with the relieving division. They didn't stay to sing songs around the campfires in the evening.

All right, we have the Death or Glory Boys well away. After all is said and done, all the Infantry have to do is get killed, and the percentages are all against them no matter how we juggle figures to show that the engineers and the others lost a lot of men. Here is where the work starts. The road net is not like the ones in an approved solution after a map problem. Oh my no! Two divisions and a corps are assigned to one road. On the map it was marked as "first class." Right after the jump-off it came as a shock to some, who had not seen what T. N. T. and shell fire can do, that there were NO roads. The metal and subgrade were gone. The ground had been shelled by all parties, trench after trench had been cut across the roads, barbed wire by the acre had grown for four years, mine craters had been blown, and booby traps were thick. All bridges, culverts and crossroads were blown off the map by either German or Allied artillery. Now we know that you have got to have beans and bullets to fight a war, and these articles have to be toted up to the front.

Let us be specific. Take the 304th Engineers of the 79th Division. This was their first scrap. Just a bunch of country boys blown in by the Draft. They had about nine months of training, a great deal of it foolish as they state themselves, but it had strengthened their backs and bound them together into an outfit. "With a peach of a colonel and the meanest skipper and first sergeant in the whole dam Army." They always are; it is their business.

By seven o'clock in the morning the 304th was fixing the roads. What had

A Familiar Sight

been a road on the map had been torn to tatters by tanks getting into position and up the defiles. Mud to your knees. Now the only thing to do is move the mud off, get something on the surface, and keep it drained. Even you and I know that. But with only a No. 6 shovel, somebody has got to arch his back. At just about this time a truck comes along and its kid driver, half asleep, bogs it down or slides its tail into the ditch. You damn all truck drivers, and his yarn is usually like this, "But Lieutenant, this here truck's got the General's bed roll and division staff's typewriters." Nevertheless, overboard goes everything, to be picked up later, and into the ditch goes the truck. The young shavetails who didn't grasp this new principle of war, suddenly, were in for a bad time. TRAFFIC has got to move.

When that stretch of road was finished, they had to leap-frog the outfits in front and start over, allowing the corps to take on the old job. Dead Jerries and Americans were buried in the nearest shell holes if they were high or badly mussed up; otherwise they were just laid off of the right of way.

There were no tools to amount to anything, as the fact had not sunk in that an engineer without tools is like a pipe without tobacco. Being recruits, the men of this outfit had thrown away their blankets, so that for the next four nights there was very little sleep, accompanied by plenty of sickness. Their clothes were wet all the time and they had only one pair of socks. Their soup cannon was lost and they lived off of rations swiped from stalled trucks. If they ran short, they would stall a truck long enough to make a meal. Orders

or no orders, you have to eat. A lot of this misery and actual loss of manpower could have been saved if the officers had ever heard of the regiments that threw away their blankets at Santiago and died by the hundred a month later. One old soldier or timber cruiser in each outfit would have saved a lot of grief.

Along comes a detachment of the 26th Engineers (water supply) and begs for help to put in a small dam and water point on a brook. Sure, you can see the sense of it, and while your orders say nothing about such diversions, you take a chance and help them.

Then you come to a small bridge, nicely mined, that has missed fire. After the customary preliminary reconnaissance you decide that it is properly set to wipe out any wooden engineer who tries to draw its teeth. This is no place to break out crying and write your congressman. Pull the string and start a new bridge. You put your gang to rustling material—beams out of a barn, standing scrub timber, floorboards from a stranded truck—and soon your bridge is built.

Along about the fifth day, you walk your outfit into a gassed area and lose some of the slower men. It might have been your fault, but you were so dead sleepy, tired and all-in that you couldn't tell phosgene from strong cheese.

Maybe you walk the outfit over the skyline and get smacked by a machine gun or loose artillery. This happened plenty to engineers that thought they were way back. Rotten security, sure, but perhaps they had been told that it was all clear; but Jerry had counter-attacked and the staff forgot to tell them.

We relieve a regiment and walk them back ten miles with their division, all set for a rest. They land in the back area at breakfast time, and are told to go back to the same place as corps troops. This practice was common at first. By that night two companies are commanded by second lieutenants, and a fair sized bridge is to be built. They build it out of stuff of the ground and what is left of a German engineer dump down the road a piece.

Next day you find a power station in a German trench system. Nice little engine, pump, light plant, and everything, somewhat nicked up, but someone says. "How nice, we will have the engineers fix it up and use if for something." How you do it you never know, but some ex-garage man from Milwaukee has it running by evening and the colonel gets a nice little chit from the general.

Then things taper off for a day; the front is not advancing. While you are resting, you go out and dig a long shallow hole and lug in a couple of dozen dead ones the best way you can: and if there is no chaplain handy, and there rarely is, you mumble a few words and shovel on the dirt. Even this is plumb hard work in ground filled with roots and boulders.

Let's follow the 2d Engineers for a time. Led by their gallant colonel, with the tail out of his pants and mud all over his uniform. They are on the roads too. Being wise, they sneak over into French zones and grab some road metal from the French dumps. The staff had arranged that all the Allies would share such material, but when it came down to the lower echelons, they

shared the way two small boys do stolen pie—the fastest eater gets the most. There are some principles of war they never mention at Leavenworth, and one of them is, "What you can't carry, drag."

Just before the scrap the 2nd got six loads of wire cutters and distributed them to the infantry. They also got 800 pairs for themselves. That's at the rate of a pair to every two men. They needed them too. They pulled another good one. A one way road has to be made two way. They lug stuff by hand alongside the first road and tamp each small layer down, directing the light empties back along the softer side. Along about this time they come to some crossroads, a ruined town. Traffic in a mess. They mount some hard boiled sergeant's on horses, tear up some blue fatigue clothes for armbands, and start patrolling the roads and straightening out the traffic situation. Of course it's not in their orders, but somebody has to do it.

Just about this time they get a holler for some platoons to go ahead and cut wire for advancing Infantry. They cut the wire but the Infantry never shows up. Jerry, being unable to tell the difference between Infantry and our Galloping Gas Fitters, takes a hand and shoots at them. Next day a few marines show up and help out, but the whole line withdraws on their left. The engineers, being too lazy to walk back, stay with the marines. That afternoon along comes a company of Infantry looking for some hill. The lieutenant in charge of the engineers lures them into his position by telling them it is the place they are looking for, and once there they can't get out. Everybody is happy and the Engineers rest for two days.

Let us take a look at the 302d Engineers. They were brought up in the front seats just before the fight started. In order to insure surprise, no daylight reconnaissance was permitted before D-day. Every night they went out as far as they dared. Tools and stores were carried forward by hand and cached in what looked like good positions. Wire was cut by hand in front of jump-off points. Engineers were trained as guides to lead the late arriving Infantry, which would have no time to become oriented. Here was their mission as laid down in orders.

1. To provide routes of advance for Infantry and Artillery. (There's a mouthful.)

2. Furnish engineer material to all troops at most advanced posts.

3. To de-gas all caves and dugouts.

4. To destroy all enemy mines.

Bear with me in this, it may be useful some day. Each squad in the advance elements, in addition to their regular packs, carried:

8 wire cutters
4 pliers
8 sandbags
2 short-handled shovels
2 lashings
1 axe
3 gas grenades
2 lbs. of nails
1 10-ft. length of footbridge
2 15-ft. section bangalore
1 30-ft. section of crossing net
4 pairs wire gloves

Squads in the rear elements carried:

1 pr. pliers
5 lb. nails
1 pick
2 axes
4 short-handled shovels
8 sandbags
2 wire cutters
1 crowbar
2 lashings
2 15-ft. section bangalore
2 15-ft. bangalores

Each platoon carried:

2 Two-man cross-cut saws
1 complete 19-ft. artillery bridge with center trestle.

Anybody who has ever wrestled such hardware all day knows that it is hard labor.

The first thing that the 302d did was to mark all trails through the woods, and clean out dugouts and strong points. On one short stretch of the road they found 15 belts of wire entanglements, seven deep trenches, four barricades, one crater 125 feet in diameter and 30 feet deep, two road traps, a German concrete pill box, and lots of small shell holes. At the end they had to build a 30-foot bridge over a tank trap. While they were resting, they connected up the French and German light railroads and moved more than 500 tons of stuff forward and a lot of wounded back, using mules as locomotives for Jerry had taken his along. In the evenings the officers were pushed ahead to find fords across the small creeks and mark them with wire. They lost two officers this way.

The 1st Engineers had the usual road work, and built plenty of artillery bridges. Went forward and helped the infantry dig in a mean position, and then the infantry was pulled out and the 1st left to hold the fort against a counterattack. A whole machine gun company was sent up to help them and they were there three days. When they got out of this fix, they went back and buried dead and fixed up the roads. There is an awful lot of hard work tied up in those words, "Fixing up the roads."

My regiment was doing about the same kind of chores. It built a 100-foot trestle bridge 20 feet from the water and put it across the Meuse at Sassay, at a time when the location was in advance of the division front lines. This sounds fishy, but Jerry was going home. The bridge was built within 48 hours after preparations were started; it later carried 15 tons without being strengthened.

There were lots of Engineer regiments all doing the same thing. It's pathetic to read their regimental histories and see how they yearn for some dead and dying so that they can brag in the local Legion Posts that they were soldiers. They never did grasp it that they were WORKERS.

The 26th Engineers were Army Water Supply Troops. They put in pumping stations, some in dugouts and protected by sand bags, all hard outdoor plumbing. The 27th Engineers, made up of hard-rock men from the mines, put in a lot of heavy bridges, all by hand. Other corps and army outfits connected up and ran light and standard gauge railroads. There was quite a belt of No Man's Land that needed attention—more than five miles from rail end to rail end in many places. All just plain hard work. No brains, just common sense, ability to see when one job was done well enough and when the next had become more important. Nerve to take a chance and disobey the letter of orders now and then by doing a little more work. Ability to rustle rest and comforts for your men. Hot coffee was good for two extra hours work per shovel. Developing the knack of keeping the men liking it, so that they would not be A. W. O. L. next morning—and don't forget there are plenty of heroes that get lost damn easy. Remember, this work was done on very little sleep and less grub, and with fewer tools than the cheapest contractor ever dared use.

What we learn from this story may be very little, but these facts are there to stay with me.

First. An engineer outfit must be trained to expect endless hard, back-breaking work.

Second. It will get no glory and few thanks except from its own officers, who should be working their brains to save their men's backs.

Third. It will get the blame if anything goes wrong anywhere, regardless of whose fault it is. If someone makes a mistake, the Engineers will be thrown in as Infantry and will catch hell from the enemy.

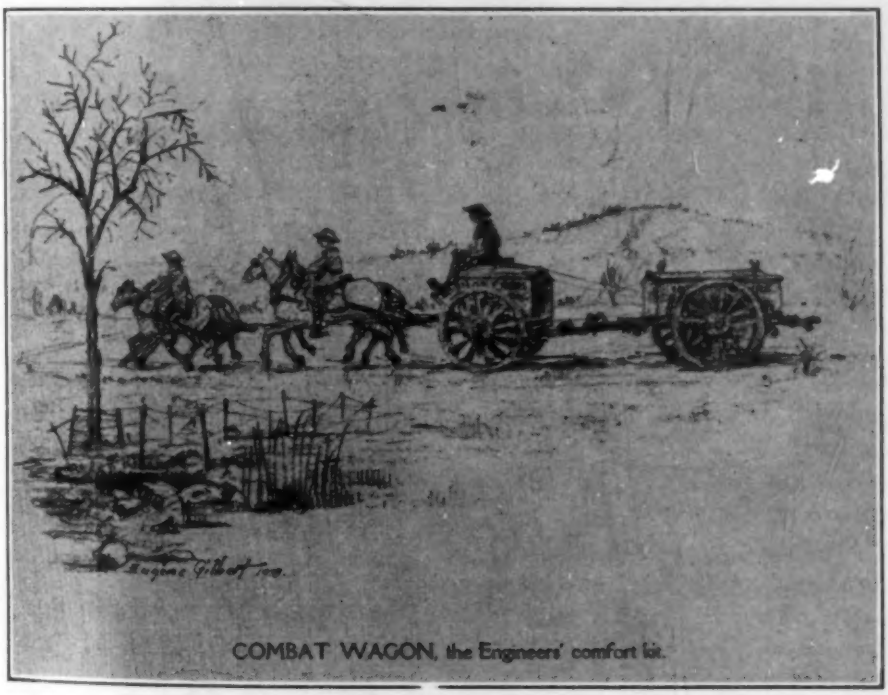
Fourth. It has to keep traffic moving, even though this means bricks without straw and roads and bridges out of thin air.

Fifth. It has to remember that no engineer is worth the name if he can't tackle and do a job that he has never even heard about before.

Sixth. It needs a lot of extra strong backs and a sense of dumb loyalty to the outfit to prevent men from burying their shovels and going sick.

The Historical Report of the Chief of Engineers, A. E. F., says:

"While the Engineer Service exists for the Army and must conform its requirements, this can best be done when most cordial sympathy and complete understanding exists." The engineers take off their hats to the fighting man; but when it comes to hard work, with fighting as a side line, "cordial sympathy" is hardly enough —somebody has to have a strong back.



Sketch by Eugene Gilbert, 103rd Engineers, A. E. F.

On the Reserve Officers Training Corps

LT. COL. BOWERS DAVIS, Infantry

THE citizen army today is the backbone of our National Defense. In a war of any size, most of our forces will come from the citizens of our country.

The National Defense policy under which our country is now operating is based on a citizen army; it is the most democratic and the most economical form of defending our country possible and is the most practical one for a democratic government. In time of war, one-half of our forces will come from our Reserve Army. In time of peace, we are trying to form an officer personnel for this great reserve force. We still have many officers from the World War who form part of this personnel and are following courses of study and attending training camps so as to keep themselves fit that they may be able to answer their country's call when necessary. These officers, however, are getting older; they are now too old to be junior officers in time of war—the junior officers will have to come from the Reserve Officers Training Corps maintained at our institutions of learning. It can easily be seen that this activity of our National Defense system is a vital one.

Instruction in military science in our colleges and universities is not a new thing; it has existed since the year 1862. However, our present Reserve Officers Training Corps is governed by rules and regulations promulgated in the National Defense Act of 1916 and by the Act of June 4th, 1920.

The object of the Reserve Officers Training Corps is:

First, To make Reserve officers;
Second, To make Reserve non-commissioned officers;
Third, To make good citizens;
Fourth, To give to the student a training which will be of value to him in his after life.

There are about 125 colleges and universities at which military training is part of the course and about 100 high schools, military schools, and other schools that maintain military units. More than 100,000 students take military training each year; about 5,000 graduate each year and become reserve officers.

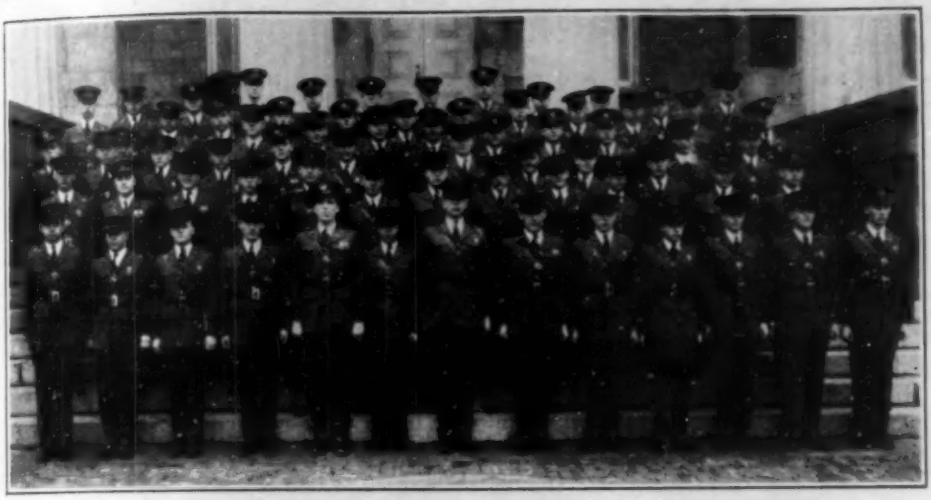
SCOPE OF THE COURSE

In our colleges the course is divided into the *Basic Course* covering the freshman and sophomore years in college, and the *Advanced Course* covering the junior and senior years. Three hours of training are required each week in the *Basic Course*, and five hours per week in the *Advanced Course*.

The subjects covered in the Infantry units are:

First Year Basic (freshman year)
- The National Defense Act
- Military Courtesy and Discipline
- Military Hygiene and First Aid
- Drill and Command
- Rifle Marksmanship
- Scouting and Patrolling

Second Year Basic (sophomore year)
- Drill and Command
- Musketry
- Automatic Rifle
- Scouting and Patrolling
- Combat Principles (rifle squad)



Infantry Advanced Course Students, University of Iowa, 1929-30

First Year Advanced (junior year)
- Map Reading and Military Sketching
- Drill and Command
- Machine Guns
- 37 Mm and 3″ mortar
- Combat Principles (rifle section and platoon)

Second Year Advanced (senior year)
- Military Law, O R C Regulations
- Military History and Policy
- Administration
- Field Engineering
- Drill and Command
- Combat Principles (rifle and machine gun Co., howitzer—Co. platoon)

THE PROFESSOR OF MILITARY SCIENCE AND TACTICS

The P. M. S. and T. at each institution has his own particular problem, and it is well for him to make a careful estimate of the situation at the start and decide how he will carry on. There are few tasks in the Army at which one is so independent and foot loose, and at which one is given so much latitude as to how he will carry on his work; and it is well that it is so, for no two institutions are alike—differences in climate, differences in size, class, and kind of institution, facilities for instruction, and many other things, make it necessary that the officer in charge should be allowed to work out his own salvation.

It is essential that one not only do what is required, but that one do more. One should try and become part of the community in which one is placed for the time being—become a member of a luncheon club, the local post of the American Legion and chapter of the Reserve Officers Training Corps. If one can afford it, one should join a country club; and it is well to help with the local Boy Scout Council, become acquainted with the trustees and faculty of the institution, and know as many of the students as possible. The P. M. S. and T. should teach most of the subjects during junior and senior years in the Military Department. He should take an active part in the local Chapter of Scabbard and Blade; and on Memorial Day and Armistice Day he should help as much as he can in the observance of the occasions.

At a co-educational institution, sponsors should be elected for the dif-

ferent organizations and a girls' rifle team started.

A good military band adds considerably to the military unit.

The schedule should be as interesting as possible; there is hardly a course in college that can be made as attractive as the course in military science, combining as it does out-door work, military history, map making, marksmanship, and the use of different modern weapons.

In some of the northern colleges where indoor facilities for drill are limited, it is best to have most of the command and leadership in the fall and the spring, and to concentrate on rifle marksmanship and subjects that can be taught in the class room during the winter months. A subject that is taught only one hour a week does not maintain interest; most subjects in college are given from two to five hours per week.

Prizes and cups should be awarded the best drilled organization, the best drilled individual, the best shot, and so on. Competitions in shooting and drill should be arranged with nearby institutions.

Most of the work during the freshman and sophomore years should be practical. The students who take the advanced course should be given every opportunity to exercise command and leadership. They should be able to give short combat orders orally, to read military maps, to use all of the Infantry weapons well, and they should know the military history of their country. A student today who graduates from one of our universities and colleges had a course in the R. O. T. C. is a better trained officer than most of our second lieutenants were when they came from the training camps in 1917 and 1918.

Opposition To Military Training

That there is an organized effort in this country to do away with military training at our schools and colleges is undoubtedly true. That the organizations at the bottom of this movement have not the welfare of this country at heart is also probably true. That they have been able to enlist the help of many good people who are trying to make the world a better place in which to live is most unfortunate. While some persons contend that there is no connection between these radical organizations and the movement against military training in our schools and colleges, it is remarkable that the agitation started almost simultaneously in so many separate schools and colleges; it is odd that so much of their literature has found its way into our colleges and universities; it is strange that in the 60 years of military training at our institutions no such agitation has taken place before.

Many of these same agencies are attempting in many other ways to ridicule and undermine our government—every other government is always right and our own government is always wrong. With the wonderful past of our country before their eyes, with its present great prosperity, and with a still more promising future before it, we have the astonishing spectacle of these malcontents trying to undermine the whole scheme of our modern civilization. There never was a country in which the individual citizen had so much to live for, in which he could go from the bottom of the ladder to the top if he was willing to work and make the best of himself and his advantages. The average citizen in this country today has more comforts and pleasure than kings and princes formerly had. If there ever was a country that was blessed, that

country is the United States; if there ever was a people that ought to be satisfied, it is the people of this country; and, as far as we can see, the future is bright if only we use good common sense and be loyal to our government and its institutions.

And what kind of statements and arguments against military training in our schools and colleges do we hear? Some of them are:

It creates a desire for war in the students.

Ask the students if it does, and you will find that their answer is that it does not. The more they know about war and the modern inventions for war and their deadly accuracy, as a rule, the less they care about it. No cult or particular brand of citizen has a corner on the market so far as desiring peace is concerned. The man who has been to war is probably the least desirous of going to war again, but he does not wish to see the youth of this country needlessly sacrificed on account of lack of training if they should have to go to war again.

IT DEVELOPS MILITARISM

There is no such thing as militarism in the United States—there never has been and there never will be. We are dependent upon our citizen army; these young men at college are being made better citizens; they are being made assets instead of liabilities in time of war. They have a perfect right to be given some training, so that if their services are needed, they may have a better chance to preserve their own lives and the institutions of their country. There are fewer college men taking military training today than there were twenty-five years ago in proportion to our population, and there was no outcry against military training in our institutions of learning in those days. Do we care less today for our country than we did twenty-five years ago?

The Government has no right to compel men to take military training.

The Government does not compel one single college man to take military training. Many colleges require students during their freshman and sophomore years to take certain subjects; military training is required in some colleges during the first two years. Students are not forced to go to college.

Military training should not be taught in a Christian college: it is contrary to the teachings of Christianity.

Is there anything more unselfish in this world than the young man who will lay down his life in the defense of his country? There are some men who are willing to hide behind a woman's skirt at such times, but luckily most of our young men are made of sterner stuff.

Military training is costly.

We spend less on our national defenses than any nation on the face of the globe, considering our wealth and size. Our army costs the individual citizen less than a cent a day; he spends more on chewing gum and tobacco. Out of every dollar that he spends for taxes, only two and one-half cents are for the army. We spend less today than we ever have before on our military effort, in proportion to our national wealth. The cost of our citizen army is very little; the small amount spent on the R. O. T. C. more than pays for itself by the good that it does in time of peace, and it would pay for itself a hundred times over in case of an emergency.

Preparedness causes war.

We have always been unprepared,

and in our 150 years of existence we have fought some 110 conflicts and more than 8000 battles. Weakness is not a defense. The nations that are prepared to defend themselves fight but seldom; those that are not able to defend themselves are as a rule in a constant state of turmoil.

Military training at our schools and colleges does not benefit the student physically.

During the six weeks training at one of our Reserve Officers Training Corps summer camps, the young men averaged a gain of more than three pounds each, an additional chest expansion of nearly one inch, and a substantial increase in height. Drill gives a correct posture in walking and is one of the best forms of physical exercise for the average individual.

As a whole, the propaganda that is directed against military training in our schools and colleges is foundless, silly, destructive and not becoming to the citizens that have the welfare of their country at heart. Without it there would be no manifestation against military training in our institutions of learning, for the youth of this country are as a whole patriotic, sincere, and manly, and respect the institutions of their country. They are issued ill-fitting old war-stock field uniforms, which undoubtedly they do not care to wear though they are generally patriotic enough to keep their thoughts to themselves except when they have to get up early in the morning and have trouble adjusting their spiral leggins and hooking the tight fitting standing collars around their necks.

The mere fact that the most radical elements in the United States, which never see any good in the institutions of our government, protest most vehemently against the Reserve Officers Training Corps should be the best endorsement possible for this form of training. Ask the members of the American Legion, who have done their bit for their country when their services were needed, whether or not they endorse the R. O. T. C.; ask the old graduates who have passed through the ranks of the R. O. T. C. of its value. The alumni of one of our well known institutions were asked to give their opinions as to what course in college was of the most value to them in their after lives. The course that received the most votes was the R. O. T. C.

IMPORTANCE OF MILITARY TRAINING

The Reserve Officers Training Corps is one of the most important elements of our national defense system because our national defense on land is based on a small Regular Army which will be quickly augmented by our Citizen Army. More than half of the officers for this Army will in the future come from the R. O. T. C.

Do away with this important part of our national protection and you will have to scrap the greater part of your Citizen Army, which means that in time of peace it would be necessary to organize and maintain a much larger standing army. This would be very costly, and is something which the United States has not done in its one hundred fifty years of existence.

Why any one should wish to abolish military training in our schools and colleges, if he has taken the time to think the matter through, is hard to understand. It is an institution which is not only doing no harm, but which is a great benefit to the individual and an excellent investment for the country. It is undoubtedly one of the greatest weapons for universal peace, both internal and external, that we have in this country today.

General Sherman on Supply Versus Mobility

1st Lieut. Riley F. Ennis, Infantry

Col. J. F. C. Fuller, a most prominent British military writer, very aptly gives our Civil War a high place in Military History. "It was one of the most extraordinary of wars ever fought — an epoch-making war in military and civil history. A war which foretold the coming of the World War of 1914-1918, the tactics of which would have been vastly modified had Moltke studied those of this Civil War . . . . . Offensive warfare had to be carried over half a continent. The outstanding marvel is that the North ever won." This war typifies the apparent aim of the British army to-day toward mobility in action, organization, and thought.

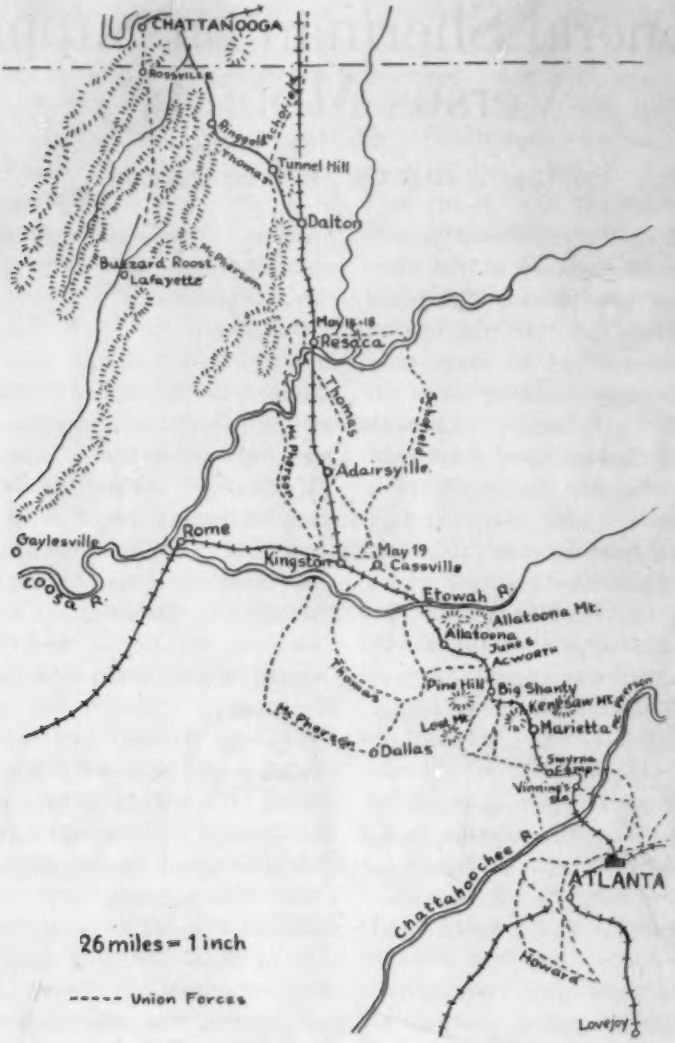
One of the most interesting examples of mobility in action, organization, and thought in the Civil War is found in the campaign of Gen. W. T. Sherman from Chattanooga to Atlanta and thence to the sea.

General Sherman said, "The great question of the campaign was one of supply." Upon supply depended the equipment of the soldier, the allotment of transportation to units, and frequently the method of attack. In the Chattanooga to Atlanta phase of the campaign, as long as the lines of supply were elastic, General Sherman's army advanced; as soon as those lines snapped, this highly mobile fighting machine faltered or stopped. This relationship between mobility and supply and equipment is an ever present problem. The manner in which General Sherman solved it presents a classic example.

On March 18, 1864, General Sherman relieved General Grant in command of the Military Division of Mississippi, which included nearly all of zone of operations west of the "Mountains". From the Gulf three main railroads ran northward from Pensacola, via Atlanta, Chattanooga, and Nashville, to Louisville; from Mobile, via Meridian, Corinth, and Cairo, to St. Louis; and from New Orleans, via Jackson and Grenada, to Memphis.

General Grant ordered General Sherman to prepare for his campaign against Gen. Jos. E. Johnston, who was securely intrenched at Dalton, Ga. This campaign began about May 7, 1864. The greater part of General Sherman's supplies came from Louisville to Nashville by a single railroad or the Cumberland River. The starting point of the campaign was to be Chattanooga. The chief supply depot was Nashville, which was partially in hostile country. Between Chattanooga and Nashville there was a single-track railroad 130 miles long. Every foot of this railroad had to be guarded, especially the many bridges, trestles, and culverts, against the hostile population and the enemy's cavalry.

When General Sherman assumed command the principal forces at his disposal were the Army of the Ohio,



General Schofield, at Knoxville; the Army of the Cumberland, General Thomas, at Chattanooga; and the Army of the Tennessee, General McPherson, at Huntsville, Ala. On April 10, 1864 these three armies had a present strength of about 180,000. General Sherman planned to form out of these three armies a force of about 100,000 to carry on his campaign. The remainder was to guard a part of the vast area that his department covered and guard his very vulnerable line of supply and communication.

General Sherman found that the railroad to Chattanooga was barely supplying the daily wants of his army and the inhabitants of the desolate region between Chattanooga and Knoxville. He found that the chief limitation of the railroad was the lack of serviceable locomotives and cars. The railroad had 60 serviceable locomotives and about 600 cars of all kinds. He

needed 100 locomotives and 1000 cars, so he ordered Colonel Anderson, master of transportation, to hold all trains that arrived at Nashville from Louisville, Mr. Guthrie, president of the Louisville and Nashville Railroad, soon detected what was being done and objected. General Sherman frankly explained what he was doing and his frankness made an ally of Mr. Guthrie. Months later, General Sherman felt a great deal of satisfaction in seeing equipment from the Baltimore and Ohio, the Delaware and Lackawanna, and other eastern railroads in Georgia.

The next step was to limit the use of the railroad. A general order limited its use to the transportation of essential articles of food, ammunition, and supplies for the army proper. Further issue to citizens was forbidden, all civil traffic was forbidden (General Sherman must have been delighted to include newspaper reporters in this class, in view of his rabid dislike for them), commanders within 30 miles of Nashville were required to haul out their stores on their own wagons, all troops destined for the front were required to march, and all beef cattle had to be driven on their own legs.

The question of forage for the animals was a serious problem; so much so that the cavalry and draft animals were limited to 35,000, a bare necessity. Only five pounds of oats or corn was to be shipped for each animal per day; the country was to furnish the remainder of the forage.

Soon 130 ten-ton cars reached Chattanooga each day and supplies began to accumulate against the day when this long line of supply, extending 336 miles northward to Louisville, might snap and leave the army dependent upon the accumulated supplies.

General Sherman next turned his attention to the mobility of his army. Each officer and soldier was required to carry on his horse or his person food and clothing for five days. Each regiment was allowed but one wagon and one ambulance. The officers of each company were allowed one pack animal. Each division and brigade was given a fair proportion of wagons for supply trains; the loads were limited to food, ammunition, and clothing. Tents were forbidden except for the sick and wounded, and one tent for each headquarters for headquarters purposes only. No office furniture or mess equipment was allowed for headquarters.

General Sherman had no tent, nor did any officer around his headquarters. He had only a fly without any pole, which he usually pitched along a fence. The mess equipment at his headquarters consisted of old tin pans and cans. General Sherman said, "Most of the general officers, except Thomas, followed my example strictly; but he had a regular headquarters camp. I frequently called his attention to orders on the subject, rather jestingly than seriously. He would break out against his officers for having such luxuries, but, needing a tent himself, and being good natured and slow to act, he never enforced my orders perfectly. In addition to his regular wagon train, he had a big wagon which could be converted into an office, and this we used to call 'Thomas' Circus' ".

To this army, stripped like an athlete for a marathon, General Thomas' meager headquarters equipment of a special wagon and several tents grew from "Thomas' Circus" to "Tom Town". It would be interesting to

hear the expressions of that army if they could see the headquarters equipment of an army of 60,000 today. It would be even more interesting to hear the expressions of the quick-eyed and sharp-tongued commander himself, who said: "I wanted to set the example, and gradually to convert all parts of that army into a mobile machine."

The administrative details that were taken care of in his field headquarters were as meager as the tentage. Brig. Gen. J. D. Webster, chief of staff, and two assistant adjutant-generals were left in charge of the office at Nashville. This office handled all of the administrative details and usually maintained communication with General Sherman by telegraph. Later this office was moved to Chattanooga. General Sherman did not desire to have a chief of staff in his field headquarters, and always dealt directly with his commanders and staff officers.

The campaign started May 7, 1864, and General Johnston was soon turned out of his position at Dalton. He retired to Resaca on May 13 and was maneuvered out of this position on May 17. He then retreated to Adairville and, finding himself in a poor position, retired to a ridge south of Cassville. In this position he was attacked, but not in force, and from here he retreated to Allatoona Pass.

After General Johnston retired from Cassville, General Sherman had to wait at that point several days until the railroad bridge at Resaca could be repaired. Col. W. W. Wright, a railroad engineer, with 2000 men accomplished this difficult task in three days. Trains then could move forward to Kingston which was within seven miles of the army.

South of Cassville, General Sherman was in familiar country, for he had ridden all through it in 1844, when a lieutenant of field artillery, settling claims for the government. Knowing the strength of General Johnston's position at Allatoona Pass, he determined to move from Kingston to Marietta via Dallas. He contemplated leaving the railroad and depending on the contents of the wagons for twenty days. The movement was slow because of the obscure and densely wooded country.

General Johnston, finding his line of communication in danger evacuated his position at Allatoona on June 4 and General Sherman moved to the railroad and occupied Big Shanty. Under continued pressure, General Johnston retired from his new line, Lost Mountain-Pine Mountain-Brush Mountain, to the crest of Kenesaw Mountain. At Big Shanty General Sherman's army was within sight of the Confederate army on the crest of Kenesaw Mountain. As soon as it was possible Colonel Wright began repairing the railroad bridge over the Etowah River. On June 6 General Sherman established a secondary base at Allatoona, seven miles to the rear, and on June 11 the railroad was opened to the skirmish line.

At this point in the campaign the enemy's cavalry began to raid General Sherman's line of supply and communication. Garrisons had to be strengthened along it as far back as Nashville.

Up to this point General Sherman's campaign had consisted of turning General Johnston out of one position after another. On June 21 General Sherman said, "This is the nineteenth day of rain, and the prospect of fair weather is as far off as ever. The

roads are impossible; the fields and woods become quagmire." On June 27 weather conditions forced General Sherman to abandon mobility of action and attack General Johnston's strong position on Kenesaw Mountain. This attack failed, with heavy casualties, and General Sherman again resorted to a turning movement. On July 3 General Johnston was turned out of his position on Kenesaw Mountain and retired to a strongly entrenched position at Smyrna Camp, six miles below Marietta. Here, on July 4, there was "a noisy but not desperate battle." General Johnston soon retired to a position behind Peachtree Creek in front of Atlanta. On July 19 Gen. John B. Hood succeeded General Johnston in command.

By July 13 General Sherman had accumulated stores at Allatoona and Marietta. He fortified and garrisoned both of these points. He had secured three points to cross the Chattahoochee River and was ready to take up the offensive. On July 20 General Hood attacked General Sherman when his troops were dispersed over a ten-mile front. He was repulsed and withdrew to Atlanta. He counter-attacked from this position and was pushed back. General Sherman drew his lines closer around the city and tried cavalry raids to cut General Hood's lines of communication. These raids failed and General Sherman then executed a great left wheel movement, destroying the main railroads that led into Atlanta. This movement forced General Hood to withdraw to Lovejoy Station on September 1.

General Sherman left him there undisturbed for three weeks, not wanting to be drawn from his base of supply. At then end of this period General Hood moved to Dallas by way of Palmetto, and prepared to strike General Sherman's line of supply and communications. General Sherman had strong railroad guards at Marietta, Kenesaw, Allatoona, Etowah Bridge, Kingston, Resaca, Dalton, Ringgold, and Chattanooga. Block-houses protected all important bridges, and all garrisons fortified their positions. This whole defense was built up with a view to repelling cavalry raids.

General Hood moved north-east from Dallas and on October 6, attacked the Union garrison at Allatoona, where although he was repulsed, he succeeded in destroying eight miles of railroad between Big Shanty and Allatoona. General Sherman moved toward Allatoona hoping to engage General Hood, who withdrew immediately toward Gaylesville. Colonel Wright came down from Chattanooga with his regular repair party and with 10,000 additional men repaired the eight-mile gap south of Allatoona in seven days. Some 35,000 new ties were used, and six miles of new rails.

In the meantime, General Forrest made several bold raids against the railroads in Central Tennessee. His raids were typical, however, of most cavalry raids of the Civil War; the destruction was done so hastily that the damage was soon repaired.

General Hood next moved from Gaylesville to Resaca, then north along the railroad, destroying it as far as Tunnel Hill. This left a gap of twenty miles. He captured Dalton on October 13, then withdrew to Buzzard Roost on October 15, and moved into Alabama by way of Gaylesville. General Sherman, following him closely, tried to bring on an engagement, but gave up the game of tag at Gaylesville

about October 20. From a railhead at Ringgold, General Sherman had to haul his supplies by wagon to Gaylesville, a distance of about 50 miles.

On November 2 General Hood was in northwestern Alabama, preparing to move on Nashville. General Sherman's headquarters were now at Kingston, Georgia. Colonel Wright had repaired the big gap in the railroad near Dalton, Georgia. General Grant on this date dispatched a letter to General Sherman giving "assent" to the "march to the sea".

On November 12 General Sherman received a message from General Thomas, at Nashville, assuring him that he was prepared to stop General Hood in his dash toward Nashville. General Sherman replied "Dispatch received — all right." In his memoirs he continues, "About that instant of time, some of our men burnt a bridge, which severed the telegraph wire, and all communication with the rear ceased thenceforth."

The fountain-head of mobility is the will of the commander. General Sherman strove for mobility with an unyielding determination. Those who would obstruct suffered sharply from his tongue. To a quartermaster he made the vehement retort, "If you don't have my army supplied, we'll eat your mules up, sir—eat your mules up." To Colonel Wright, who estimated the time required to replace the burnt railroad bridge over the Oostenanla, would be four days, General Sherman said, "Sir, I give you forty-eight hours or a position in the front ranks."

The mobility of General Sherman's army was not of the strength-sapping variety of that of the armies of General Lee and General Jackson. He did not neglect the factor of supply to gain mobility. General Sherman showed more joy over the news of a small increase in carloads of supplies than over a large reinforcement of troops. The word supply to General Sherman became synonymous with food, forage, and ammunition. He realized that sustained or increasing mobility is dependent on full stomachs. General Sherman's army, after two months of steady fighting, entered Atlanta with animals and men in almost perfect condition.

Mobility of thought, equipment, and supply may be neutralized by lack of mobility of action. That General Sherman possessed it is demonstrated by the way he turned General Johnston skillfully out of successive positions and only assaulted him directly at Kenesaw Mountain where General Sherman's army was mired in the mud, spoiling for a fight.

The obstacles that confronted General Sherman in his effort to obtain mobility in action, organization, and thought would have proven insurmountable to a lesser commander. He overcame them because he believed that more wars and battles are won by troop movement than by fighting.

Notes from the Chief of Infantry

Commissioned Personnel, Office Chief of Infantry

Chief of Infantry
MAJ. GEN. STEPHEN O. FUQUA

Executive
COL. LORENZO D. GASSER

Section I—*Personnel*
Col. C. C. Allen
Maj. E. F. Rice
Maj. C. C. Stokely
Maj. L. S. Hobbs

Section II—*Intelligence*
Maj. T. B. Catron
Capt. H. M. Melasky

Section III—*Training and Inspection*
Lt. Col. E. J. Moran
Lt. Col. B. Magruder
Maj. C. H. White
Capt. W. G. Layman

Section IV—*Arms and Equipment*
Lt. Col. E. Butcher
Maj. J. D. Patch
Maj. H. Terrell

Section V—*Mobilization and Organization*
Col. F. W. Bugbee
Capt. P. E. Leiber

Tank Machine Gun Sights

UNDER the supervision of the Tank Board at Fort George G. Meade, Maryland, a test was made with a view to determining the best of three front sights proposed for tank machine guns, and to submitting recommendations for further development.

The three sights considered were the Peters sight, an Ordnance Department modification of the Peters sight, and an adapted Lyman sight.

The Ordnance Department modification of the Peters sight was found to be the most satisfactory of the three. The one essential fault with this sight was the fact that it could not be mounted on guns fitted with telescopic sight brackets, because of interference with these brackets. The defect, however, was common to all the sights tested.

The Chief of Infantry has recommended further development of the ordnance sight, in an endeavor to obtain a sight that can be used on tank machine guns either equipped or not equipped with telescopic sight brackets.

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Smoke Candles

THE Department of Experiment, under the supervision of the Infantry Board, has reported on a test made of slow-burning smoke candles, E2R1 and E2R2.

The E2R2 candle was recommended for further development. Six seconds were required to produce smoke, and an additional six seconds to attain its best productive rate. The burning

period of this candle was one minute and 35 seconds. This time was considered too short, as the candles would have to be replaced almost every minute in order to prolong a smoke screen for several minutes.

It was recommended that the filler in the E2R2 candle be modified so as to insure a large volume of smoke for initial concealment, and the filler be such as to insure an effective flow of smoke for two minutes or longer.

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37-MM. Gun, M2E1

DURING a recent test of the 37-mm. gun, M2E1, it was noted that a very small number of hits resulted from firing on a target moving from right to left, while the firing on a target being towed from left to right was highly satisfactory. This divergency of results was attributed to the fact that it was awkward, in the first case, for the gunner to traverse the gun and pull the trigger.

As a consequence, it was suggested that a double trigger arrangement be placed on the gun, so that it may be fired from either the right or the left side. This was approved by the Chief of Infantry and this feature will be incorporated in the gun now under test.

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Ethylene Glycol as a Cooling Agent

ETHYLENE glycol as a cooling agent for machine guns was recently tested at Aberdeen Proving Ground.

The test indicated that glycol, as compared with water, permitted a 100 per cent increase in the sustained rate of fire, and that glycol stopped boiling immediately after firing had ceased. Water continued to boil for an appreciable length of time, and the loss of water from the jacket was twice that of glycol.

This cooling agent is considered superior for aircraft and antiaircraft machine guns, where a high rate of sustained fire is sought, but the supply difficulties and consideration of the fact that the normal target for the infantry machine gun is a relatively slow-moving ground target indicate that the necessity and desirability of the adoption of glycol as cooling agent for infantry machine guns are questionable.

The Gaberdine, Oiled-Interlining Coat

The Impregnated Canvas Duck Coat

Trench Coats

THE Infantry Board has rendered a report on the results of tests conducted with three types of trench coats. The types tested were:

a. Coats with outer material made a gaberdine, oiled interlining, broadcloth lining, corduroy collar, and Nuback detachable warmer-lining. (See illustration).

b. Coats made of the same material as in *a*, except that the warmer-lining was made of Kirsner blanket material.

c. Coats made entirely of waterproof canvas duck with no lining or interlining and with Kirsner blanket material as a warmer-lining. (See illustration.)

All the trench coats tested are simi-

iar in appearance to those worn during the World War by American and British officers.

The desirability of a trench coat as a regular article of field clothing for our Army lies in the fact that, while our present overcoat is an excellent garment for warmth, it offers little protection in wet weather. When once wet, it requires considerable time to dry, and while wet, offers a degree of warmth and comfort not at all commensurate with the weight of the wet coat.

The tests indicated that the impregnated canvas duck coat with corduroy collar was superior to the gaberdine coat with oiled interlining. Both the Nuback and Kirsner warmer-linings were found to be essentially satisfactory. The canvas duck coat was found to be substantially waterproof and to gain a minimum of weight when exposed to rain. This coat, without lining, is 1.1 pounds lighter than the present issue raincoat and is apparently more satisfactory as a raincoat in warmer climates. Temperatures between 24 degrees Fahrenheit and 103 degrees Fahrenheit in no way affected the garment.

It has been recommended that 200 of these coats be manufactured. 175 are to be issued to troops in cold climates for test as to their desirability and warmth, and 25 are to be sent to the Infantry Board for test.

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National Guard and Reserve Officers at Infantry Special Service Schools

DURING the years 1920 to 1930, inclusive, 92 field officers and 864 company officers of the National Guard and 30 field officers and 278 company officers of the Organized Reserves successfully completed the special courses given for them at the Infantry School, Fort Benning, Georgia. During this same period, 16 National Guard officers and 45 Reserve officers were graduates of the courses at the Tank School, Fort George G. Meade, Maryland.

The facilities at the Infantry School now permit an enrollment of 250 National Guard and Reserve officers, and the Tank School can put 20 National Guard and Reserve officers through its courses each year.

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Caliber .45 Tracer Ammunition

THE Department of Experiment has completed a fourth test of caliber .45 tracer ammunition as a signalling agency. The test again showed that this type of ammunition was useful for communication between small units except during operations carried out in the bright sunlight. This means of communication was considered especially adaptable for transmitting prearranged signals between company or platoon commanders and patrols or segregated elements of a command.

The red and green colors were used in the test, and the red proved superior. The average trace of the red was 800 yards over a period of 3.7 seconds, and of the green, 590 yards over a period of 2.6 seconds. At night, signals were easily identified at a distance of 1000 yards, while on a bright day identification was unreliable at more than 200 yards.

The Chief of Infantry, desiring that an extended service test be made, has recommended that 2000 rounds each of the red and the green caliber .45 tracer ammunition be issued to the 29th Infantry for field exercises and maneuvers.

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Tracer Ammunition Mixture

A SERIES of tests, is being conducted at Aberdeen Proving Ground, for the purpose of determining the best tracer ammunition mixture to be used.

The results of the latest tests with the caliber .30 ammunition have been excellent. An average length of trace of 1,065 yards was secured, and 99 per cent of the rounds fired functioned entirely satisfactorily.

The caliber .50 tracer ammunition has also shown highly satisfactory results. The last lot tested gave an average length of trace of 2,050 yards, and 99.334 per cent of the rounds fired functioned satisfactorily.

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Students, Infantry School, 1930-1931

ADVANCED COURSE

Maj. Carl J. Adler
Maj. Thos. K. Collins (PS)
Maj. Erskine S. Dollarhide
Maj. Roger B. Harrison
Maj. Charles S. Ritchel
Maj. Charles L. Steel
Maj. Walter P. Tyler
Capt. Waine Archer
Capt. Henry D. Bagnall
Capt. Ernest S. Barker
Capt. Ira W. Black
Capt. John W. Bulger
Capt. Rufus A. Byers
Capt. Walter B. Cochran
Capt. Edward J. Curren, Jr.
Capt. George O. A. Daughtry
Capt. William W. Eagles
Capt. Raymond F. Edwards
Capt. K. J. Fielder
Capt. Herbert D. Gibson
Capt. Roy N. Hagerty
Capt. Albert B. Helsley
Capt. William M. Hutson
Capt. John N. Johnson, Jr.
Capt. Ernest T. Jones
Capt. Andrew T. Knight
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Capt. George A. Miller
Capt. George Munteanu
Capt. A. B. O'Connell
Capt. Walter C. Phillips
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Capt. Francis M. Rich
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Capt. Arthur J. Stark
Capt. O. E. G. Trechter
Capt. Samuel T. Williams
Capt. John A. Andrews
Capt. Stanley G. Backman
Capt. Floyd H. Bain
Capt. Wendell L. Bevan (FA)
Capt. Adrian R. Brian
Capt. Thomas B. Burgess
Capt. F. K. Cahill
Capt. Carter Collins
Capt. David J. Daly (PS)
Capt. Leo Donovan
Capt. Alfred V. Ednie
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Capt. James H. Hagan

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Capt. William L. Ritter
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Capt. John A. Shaw
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Capt. William M. Tow
Capt. Hervey A. Tribolet
Capt. Robert L. Wright
1st Lieut. Frank H. Curtis

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1st Lt. James E. Bowen, Jr.
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1st Lt. Charles N. S. Ballou
1st Lt. Joseph W. Boone
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1st Lt. Roy J. Caperton
1st Lt. Frank Christian (PS)
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1st Lt. William A. Marsh
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1 t Lt. Walter R. Miller
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2d Lt. Raymond E. Bell
2d Lt. Rothwell H. Brown
2d Lt. Richard Chase
2d Lt. John P. Doidge
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2d Lt. Dwight Harvey
2d Lt. Paul D. Adams
2d Lt. William M. Breckinridge
2d Lt. Charles D. W. Canham
2d Lt. Maury S. Cralle
2d Lt. Joseph H. Gilbreth
2d Lt. Paul Hamilton
2d Lt. David D. Hedekin
2d Lt. Woodson F. Hocker
2d Lt. Malcolm R. Kammerer
2d Lt. Kenneth F. March
2d Lt. George V. H. Moseley, Jr.
2d Lt. Alfred H. Parham
2d Lt. Josiah Ross
2d Lt. Kenneth E. Thiebaud
2d Lt. Elmer M. Webb, Jr.
2d Lt. Albert A. Horner
2d Lt. Charles W. McCarthy
2d Lt. Edward F. Merchant
2d Lt. Godwin Ordway, Jr.
2d Lt. John S. Roosma
2d Lt. Wayne C. Smith
2d Lt. Fred L. Thorpe
2d Lt. Thomas J. Wells

Reviews and Discussions

Other Armies

CAPT. TREVOR W. SWETT, Infantry

THOSE who read the service journals are all more or less familiar with what is happening, in general, in our Army; sufficiently familiar, at any rate, to have an opinion on any given program, or on rare occasions to argue passionately for or against some suggestion or innovation. The three components—Training in Regular Regiments—National Guard Duty—Reserves—College Units—C. M. T. C. Work—Promotion—Tests and Experiments by the Branch Boards—100 per cent Qualification Records—Pay Bill—Garrison B and C Schools and Well-balanced Menus—Maneuvers in Panama—In Texas—In New England—Mechanization—The Quarters Situation—Budget Stringency — Congress — Leavenworth Policy—Foreign Service—Under-strength Organizations—The New Infantry Battalion— Recruits—Blues. The Service journals have in recent months touched these points, some profoundly, some cursorily; and many more points. Possibly too many, possibly too frequently. In any case, the magazines reflect or are intended to reflect the interests of our Army.

But what goes on in other armies?

National characteristics differ, which is about as exciting an observation as to advance the theory that two and three are five. However, one is apt to find that while, say, the Englishman and the Italian and the Russian are wider apart spiritually than geographically, the mode of thought of a British Foreign Office representative, an Italian diplomat, and a Polpred of the S. S. S. R., and their approaches to the same problems or similar problems are ten times more at variance than the solutions of similar or identical military problems or economic problems or any problems by British and an Italian and a Russian soldier. With proper deference to the several departments of government in any land, I think that the military branches of all governments more nearly approach between themselves a least common denominator than do any other governmental agencies. Directness of thought and expression and action are international military characteristics. (This despite the vagaries of involved paper-work, likewise an international military characteristic).

All the more reason to follow events and reactions in the services of other countries. And any resulting observations or conclusions are more than helpful as background for observations and conclusions about our own service.

With the above in mind, let us con-

sider *Tactics, Tanks and the work of Infantry.*

The British, French and German services are devoting a vast amount of attention to mechanization.

Among the most radical of the British theorists the vision of a future war on a grand scale involves armies of

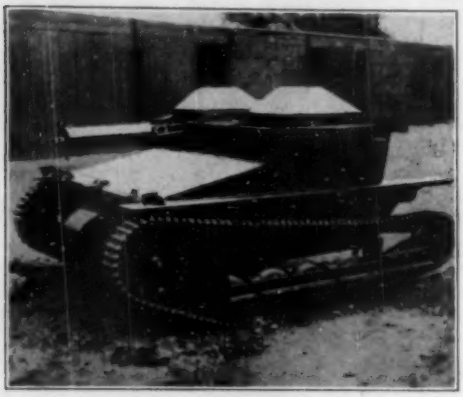


Plate 1—The Carden-Loyd as a Light Tank

tanks that will accomplish astounding things, and relegates to secondary influence the conventional combat of the last war. The development of mechanization introduces a problem with many theoretical elements, which might well be called the *X* problem. British study and technical and, in particular, tactical experimentation with the various *X* factors are proceeding largely under the impulsion of an extremely able group of nonconformists. The French are notably less radical than the British in their consideration of mechanized instruments of warfare. With them the infantry platoon has not forfeited its importance. The German reaction likewise appears to take exception to certain British conceptions of mechanized war.

Notes of Captain Loustaunau-Lacau in *La Révue d'Infanterie* for May, 1930, commenting on a Swiss study of infantry reorganization, and on the Cardon-Lloyd tank, plainly indicate several basic French ideas:

> The European infantries as now constituted suffer from an absolute lack of effective means against those two new and terrible enemies: the tank, the airplane. As to their weak offensive power against the automatic arm, there is no need to mention it again. The war lasted four years for this reason, and behind the front, work was directed almost exclusively to the creation of weapons capable of destroying the all-powerful automatic arm. Just now there is not, as far as we know, any means more powerful than the tank for restoring its offensive power to the infantry. The English go further, since their young school has already drawn a red ink line through the infantry, in which it recognizes only a defensive power. * * * As for ways of increasing the protective capacity of the infantry against tanks and against planes, this must receive attention and prompt attention. The future of the infantry depends on it.

* * * *

The microbe tank or Cardon-Lloyd-Vickers is certainly causing quite a stir. As a matter of fact, its weak armor does not entitle it to be considered one of the real fighting tanks, but it is a piece of machinery on caterpillars that has much interest because of its flexibility, its low visibility, its speed, and the many uses which can be foreseen for it. The last British maneuvers emphasized its tactical and technical qualities.

Americans, also, who are unwilling to be left behind in the matter of motorization, have decided to test this weapon. * * * The mistake must not be made of comparing it to a tank; it has neither the tank armor nor armament nor shock power. But

it can render unlimited services to the infantry as a communication agent, on patrol, in replenishing supplies, as a temporarily stationary element of fire, and even at times in reconnaissance **before contact**. Should the infantry ever be completely motorized, it is probable that its mechanization will commence simultaneously in the rear, with trucks, buses, and so on, and in the forward elements, with light machines of this sort. We shall await with some curiosity the official opinion of the American War Department.

While the British have not gone so far in practice as in theory, and have not irreparably red-lined their infantry with indelible ink, the "young school" assuredly minimizes its role. Yet now and then a voice cries in the wilderness. In the May, 1930, *Royal United Service Institution Journal*, Lieutenant-Colonel Baird **Smith**, ("The Theory and Practice of Mechanization") points out a few enthusiasms of the more extreme British writers and forcibly suggests that the realities of the last war may not conveniently be lost sight of in the next. Colonel Baird Smith notes the necessity for infantry protection for the mechanized forces at night, when "for an average half of the twenty-four hours while machines and mechanics retire for rest and overhaul, the fate of armies will rest in its hands," and stresses the importance of solving supply problems before too many commitments in the field of strategy are undertaken. Quoting:

> In discussing the Army Exercises of 1929, Captain Liddell Hart states that the "offensive power" of the infantry brigade had "dwindled almost to zero." In peace-maneuvers, it may be remarked, the gauge of "offensiveness" of any arm is the opinion of the umpires; and no one would claim for them any degree of infallibility. It appears, however, that an infantry brigade is capable of acting as a "supplement" to "mop up" the mess made by the light and medium tanks in their successful assaults; while it can "take over" captured ground. What this "mopping up" and "taking over" would involve in real war, the writer does not stop seriously to consider; indeed, rather than lose the "strategic mobility" of the tanks, he would dispense with the handing-over business, and let the positions look after themselves. • • •
>
> If the technique of the New War appears somewhat disjointed, its theory is still more so. According to some writers, a new British doctrine is becoming "crystallized" in the minds of staff and regimental officers; and if this petrifying process—by which doctrine is not necessarily clarified—is not to result in a too definite, rock-like consistency of ideas better kept fluid, the equivocal lessons of these recent peacetime experiments should be carefully sorted and examined in the light of actual war experience. • • •
>
> The scale of the last European war, which may equally measure the next, must be constantly borne in

Plate 2—The French Solution of the Carrier Problem

New Citröen Cavalry Car with Kegresse Half-Metal Tracks

mind when constructing a strategic theory; this can never be worked out on a penny atlas. The exiguous British Expeditionary Force of the future, even if completed armored and mechanically propelled, might inflict nothing more than a deep wound on the great body of its adversary; such a wound, no more mortal than many inflicted by "manpower" forces, even if measured in terms of a Tannenberg or a Caporetto, may well fall short of decisive effect through the vast dimensions of the war as a whole.

As progress marches on, one may say "We have changed all that," and a future General Forrest's recipe for victory may run something like this: "Git thar fustest with the mostest tanks!" But even the extreme British theory, with General Fuller's tank armies and Captain Liddell Hart's suggested reduction of the light infantry of an armored division to three 500-man battalions, can hardly expect adequately to hold a position won by mechanized elements in any but a made-to-order situation. The doctrine of thorough coordination between the mechanized and infantry elements of a force has as a corollary, which cannot yet be discarded, the provision that there must be a strong combat infantry whose function is to fight.

Military Procedure

Prepared expressly for the citizen-soldier

MAJ. GEN. E. G. PEYTON, U. S. ARMY

TRAINING NOTES
No. 11

For study and file with Training Memorandum No. 1[1]

MILITARY DISCIPLINE

In its application to Guardsmen closely associated in the local community.

General Consideration. Groups of men, inspired by a common purpose to cooperate under an acceptable leader, have gotten together from time to time to penetrate darkest Africa, to explore the Amazon, to make discoveries in the frozen North and in the frozen South. Other groups bind themselves together with ropes for better cooperation, security, and helpfulness in climbing the steep and icy peaks of the Alps.

Your group, inspired by the necessity and requirements of national defense, has gotten together under an acceptable leader to cooperate in research and effort designed to insure an early and economical return of an

[1] See INFANTRY JOURNAL for January, 1930, p. 77.

honorable peace, should our peaceful relations be interrupted by war. Your group is bound together by the *chain* of command to insure cooperation, security, and helpfulness in the development of those attributes in the individual and in the unit that are essential to successful prosecution of War. In the smallest administrative unit, this chain of command leads from the captain to the platoon commanders, from the platoon commanders to the section commanders, from the section commanders to the squad leaders, and from the squad leaders to the privates who make up the squad. There is no reason why this military group should not start its activities with a determination on the part of each member to cooperate willingly and completely to accomplish the group mission.

Military Discipline. Paragraph 3, Training Regulations 10-5, describes the qualities to be developed by military training. The very first quality sought is defined in these words:

a. Military discipline is that mental attitude and state of training which render obedience and proper conduct instinctive under all conditions. It is founded upon respect for and loyalty to properly constitued authority. While it is developed primarily by military drill, every feature of military life has its effect on military discipline. It is generally indicated in an individual or unit by smartness in appearance and action, by cleanliness and neatness of dress, equipment, or quarters, by respect for seniors, and by prompt and cheerful execution by subordinates of both the letter and the spirit of the legal orders of their lawful superiors.

The mental attitude and state of training mentioned in the first sentence of the paragraph describing military discipline are separated from each other by a considerable interval of time. With the peace-time recruit there is a favorable mental attitude the moment he seeks admission to the military organization, but it must be further developed to a stage in which the mental attitude becomes receptive to the military training that follows. It is essential first to remove from the young man's mind the fears incident to the word discipline. The conceptions of military discipline in the minds of our civilian friends suggest the big stick wielded by dominating and arrogant superiors, punishments, court martials and guard houses.

One of the definitions of discipline given in the dictionary reads, "Correction; chastisement inflicted by way of correction and training; hence, training through suffering." In the early development of the new Guardsman's mental attitude, preliminary to placing him in a receptive mood for training, why not eliminate the word discipline entirely and substitute "cooperative spirit." Is there any better discipline than a highly developed cooperative spirit, "which renders obedience and proper conduct instinctive under all conditions?"

Having removed from the new Guardsman's mind the fears incident to the word discipline, let him determine for himself under your supervision the necessity for his special individual instruction. Show him his unit at drill and let him feel that you are going to give him special instruction to spare him the embarrassments incident to lining him up with the old timers without such needed instruction. In this early development of the recruit's mental attitude, your own mental attitude needs some attention. Re-

member constantly that you are not breaking the recruit in, you are now carefully earning his cooperation by your unselfish desire to assist him and to promote efficiency of the unit. Take the recruit into your confidence and explain in detail the requirements of the military service, as are covered in Training Notes 1 & 2 on Control and Habits Formed in Training.[2] Impress upon him that these requirements are for his benefit, in that in war a careful observance of them offers him and his fellow citizens the best chance for preservation of life and limb, and at the same time hastens the day of victory and the return of peace.

The second sentence of the definition of military discipline reads; "It is founded upon respect for and loyalty to properly constituted authority." Respect and loyalty cannot be acquired by order, demand, nor supplication; they must be earned by the properly constituted authority. The best start in this endeavor is to insure that loyalty and respect start at the top and work downward. You will soon find that respect, loyalty, admiration, and other intangible attributes will return to the leader in such volume as will insure an early and high development of the cooperative spirit.

The third sentence of the definition reads, "While it is developed primarily by military drill, every feature of military life has its effect on military discipline." The value and importance of military drill need no elaboration, but the leader must remember that the great disciplinary value of drills of precision is increased in direct proportion to the accuracy and precision with which they are performed. If laxity is condoned and the men are permitted to perform drills of precision in their own way or to depart from the clearly defined methods of the texts, real discipline and control will not result.

To indicate that every feature of military life has its effect on military discipline, I will cite an instance showing how every phase of armory training was utilized to promote discipline. A few years ago, I inspected a National Guard company of infantry, commanded by a captain who had had previous service as a noncommissioned officer of a Regular Cavalry regiment. I was struck by the business-like atmosphere of discipline, esprit, cooperation, efficiency, and enthusiasm that pervaded the armory at the assembly and inspection of this unit, and I learned the cause. It seems that when the captain assumed command he assembled his officers and men, pointed out to them the requirements of military procedure, carefully explained the reasons therefor, and enjoined every member of the unit, when he entered the armory in uniform on drill nights, to think himself into a situation in which the government's relations were strained, war clouds were darkening and hovering low, and orders for mobilization, expansion, and concentration were expected at an early date. By this means and through the willing cooperation of all members of his unit, he intensified armory training and made it progressive. The unit improved rapidly in efficiency with a high development of esprit and enthusiasm, which was carried by the members to their homes and places of employment, and the whole community soon felt a keen pride in its military organization.

[2] INFANTRY JOURNAL for January, 1930, pp. 78 and 81.

The last sentence of the definition of discipline describes the indications of military discipline. Now have you the leadership, the influence, and can you develop in your men a cooperative spirit that will cause them to carry to their homes and to their places of employment these indications of discipline? If the homes and the employer see marked improvement in courtesy, neatness, cooperation, respect, cheerful execution of orders, mission accomplishment, and like matters, the members of the unit they will feel more kindly toward the organization and toward the military training that produced these pleasing results. When morale is thus boosted in the home and the office of the employer, it will return and appear with greater intensity in the armory.

The leader must find time to plan and prepare his scheme of instruction for each drill night, to the end that he may give the members of his unit something of interest and value to carry home with them, and to think about during the week.

Our Big Responsibility. In the next national emergency the military leader will deal directly with life and death. While he cannot eliminate casualties, he can reduce them by the steps he tak takes now to improve his tactical knowledge and ability to lead his team properly. National Guard units are expected to take their places alongside the Regular Army as first line units. Both of these components will suffer a marked decline in peace-time efficiency due to expansion to war strength by the acquisition of untrained men. The enemy himself will probably regulate the time that will be available for the intensive training required to return units to an effective state. The point I wish to emphasize is that so much more can be accomplished in that uncertain and limited period of time if we accomplish or master what is expected during the current training years.

Our people have given us a military policy and an effective national defense act. They pay the cost of that act and policy, secure in the thought that the three components of the Army of the United States will provide them adequate and effective leadership, when the nation mobilizes for its next emergency.

We, as officers of the Guard, must set high standards for that leadership and aid the Guardsman to measure up to the large responsibility that now devolves upon him. His first peacetime duty is to his civil avocation, but a highly developed initiative, combined with a spirit of service, will enable him to meet both obligations without jeopardy to either.

The Infantry

REGULAR—NATIONAL GUARD—RESERVES

Who Gets the Credit?

When the field training period opened for the 7th Infantry, stationed at Vancouver Barracks, Washington, in the spring of 1928, the regimental communications platoon had great difficulty in maintaining radio communication within the regiment by means of the 77-B radio set as issued.

The regiment at that time did not have a technically-trained communications officer, nor was there within the platoon anyone of sufficient technical training to solve the problem presented by the repeated failure of these sets to operate when carried into the field.

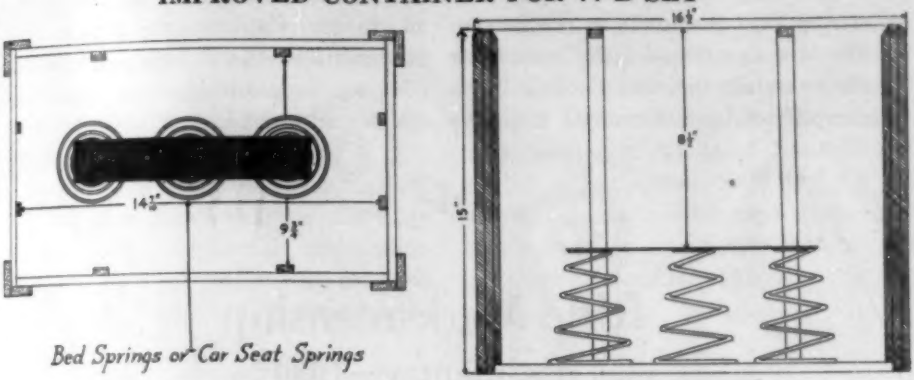
The major cause of failure on the part of the 77-B sets was the constant and apparently unavoidable breakage of delicate parts by the pounding that the instruments received when carried over roads and even moderately rough ground on the springless communications carts provided for their transportation. Under the best of conditions, with the exercise of utmost care on the part of the communications personnel, these breakages would occur with exasperating frequency. When the carts had to be drawn over really rough ground in the course of tactical exercises, much delay was occasioned in the setting up of command posts because of the necessity for manhandling carts and, sometimes, because of the need of abandoning the carts and carrying the equipment into position by hand. With the limited personnel of the communications platoon, this became a very serious matter in problems of extended duration.

It was very clear that something had to be done. As has so often occurred in the experience of the soldier, a practical solution was found which it is the purpose of these notes to make available to other Infantry units that may have had the same difficulties as those which have been completely overcome by the personnel of the Headquarters Company, 7th Infantry.

From having been the object of criticism and much hard language, our 77-B sets are now regarded as very efficient and far superior to the 79-A set from the point of view of mechanical reliability. The diagram fully explains the very simple device, which consists of a crate with spring cushions in which the 77-B set is now carried on the communications carts of the 7th Infantry. The only question that remains is. Who gets the credit?

So much time has elapsed since the work was begun, the tests have been so long, and so many changes have taken place in the commissioned personnel under whose direction the tests were carried on, that it is a matter of considerable difficulty to allot due credit to the individuals concerned. It is felt that those concerned will be amply rewarded by the knowledge that their contributions have assisted materially

IMPROVED CONTAINER FOR 77-B SET



TOP VIEW SIDE VIEW

Suggested by 1st Lieut. E. M. Starr—Made by Pfc. Montack, Hdqrs. Co., 7th Inf.

in restoring the 77-B set to a place of good standing in the Infantry radio equipment. However, in order that everyone may be assured that an effort has been made to give credit where credit is due, the following is quoted from an investigation recently made in the orderly room of the Headquarters Company, 7th Infantry:

"Captain (To Communication Platoon Sergeant): Where did these containers for the 77-B radio sets come from?

Platoon Sergeant: I don't know, Captain, but they sure are fine. We never have any trouble with these sets.

Captain (To First Sergeant): Do you know who fixed up the containers for the 77-B radio sets?

First Sergeant: We had a problem in communication and these sets wouldn't work. The 79-A radio set worked fine and the previous commander of the platoon recommended that the 77-B sets were worthless and that we should try to get 79-s for the battalions. I think the Colonel ordered him to fix up something to protect the sets while being carried on the carts.

Captain (To Supply Sergeant): Do you know anything about these containers for the 77-B radio sets?

Supply Sergeant: Yes, Sir. I remember the previous Captain got after the previous Lieutenant and told him he could have anything he wanted to fix up these sets and that he could use the mechanic or anyone else he wanted to work on them. The Lieutenant ordered me to wrap them in old blankets or something so they wouldn't jar, so I told the mechanic to fix them up.

Captain (To Mechanic): Did you fix up these boxes for the 77-B radio sets?

Mechanic: Yes, Sir. The Lieutenant got after the Supply Sergeant and the Sergeant said I had to fix them. I looked at the box and I looked at the set and they just fit, so I went to the dump to see what I could find. I found some old spiral bed springs and brought them back, and I tried to put springs on the cart, but it was no good and the men knocked them out, so I thought I would extend the sides and

make the box deeper. Then I cut strips of spring that would fit in the bottom of the box and dressed the extentions on the box and repainted the box. Then the Supply Sergeant showed it to the Lieutenant, and the Lieutenant showed it to the Captain, and the Captain showed it to the Colonel; and then the Supply Sergeant came to me and said it was all right."

-I-

Rifle Marksmanship

11th Infantry—1930

THE method of conducting rifle marksmanship range practice, by the 11th Infantry during the current season, while not claimed to have originated in this regiment, is believed to contain points of interest and benefit to all those who are confronted with the problem of firing an organization and at the same time carrying out the necessary post activities.

The problem was to conduct rifle marksmanship range firing in such a manner that the men who were firing would, during that period, devote their entire attention to this training, and not be called upon for any other duties.

The plan finally adopted was this: The time allotted for target practice was divided into three periods of ten days each. A group to fire in the first period was selected by each company commander. The strength of these groups was about 40 per cent of that of the companies. The groups were composed of men who were certain to qualify as experts or sharpshooters and of some concerning whose qualification there was some doubt. Those not selected for the first group were used for pit details, post fatigue, guard, kitchen police, and other work. All members of the firing group were assured that their entire time would be devoted to rifle marksmanship.

Upon the completion of instruction range practice, company commanders selected only those to fire record who would surely qualify, barring some unforeseen event. Those concerning whom there was a doubt were turned back to the second group for more instruction and practice.

When the first group had completed its range firing these men were available as coaches and for the necessary post duties. The second group was fired in a similar manner.

When the third groups went up for record they were found to consist of about 20 per cent of the company personnel and very few from the first groups.

The results were much higher than those of the 1929 season, when the regiment fired by battalions. During that season the regimental percentage was 91.59, with only one 100 per cent company. This year the percentage was 91.59, with only one 100 per cent panies. A point to note is that the rifle companies this year qualified 98.08 per cent.

In several instances men who started with the first group and were more or less hopeless, fired with the third and qualified, while a larger number who were turned back from the first to the second qualified.

In summing up, it is believed that if the soldier knows that he will have no other duty except rifle marksmanship, his state of mind will be such that he can more fully concentrate on this training to the advantage of all concerned. The company officer can produce better results and a higher qualification, as well as more highly efficient instruction. Also the soldier, as a matter of pride to himself and to his organization, will try by all possible means to show such proficiency in his instruction practice that he will be allowed to fire with his original group.

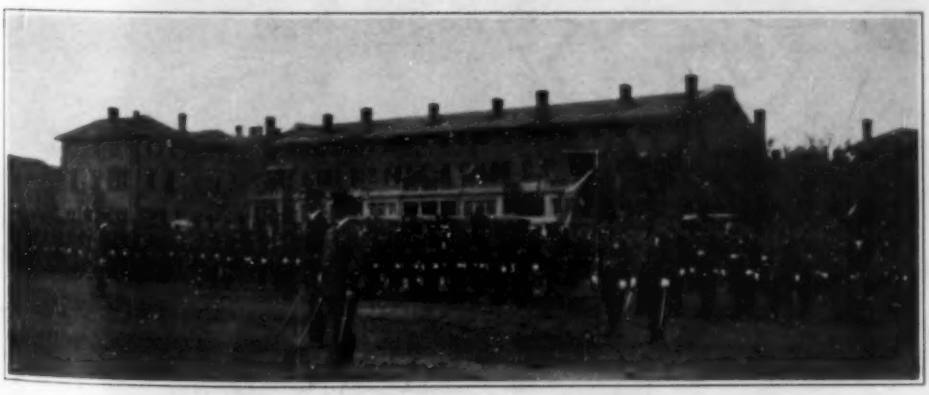
-I-

Regular Army

AT Fort Snelling, Col. David L. Stone, commanding, performed a gracious act on behalf of the Government on the afternoon of July 24, 1930. Almost twelve years after a boy died heroically at Madaleine Farm, his father, Mr. Mark E. Robey of Sandstone, Minnesota, stood before soldiers as the Distinguished Service Cross was posthumously awarded to Private Hartley M. Robey. The presence of the R. O. T. C. trainees at Camp Snelling, on parade, gave particular impressiveness to the ceremony.

The 15th Infantry, Col. J. D. Taylor, commanding, though far away in China, has an interesting life, to judge from the monthly letters of activities of the regiment.

During the month of May the general training went forward, including almost everything that one can think of, from close order drill to antiaircraft defense work. There were the usual ceremonies, marches, inspections, target practice, and school work. On May 5 and 6 the regiment celebrated its sixty-ninth anniversary.



The Organization Day Review of the 15th Infantry

Mr. C. K. Gauss, the American Consul General at Tientsin, addressed the command. Another special day was Memorial Day on which there were ceremonies distinctly international in nature.

At Fort Missoula, Col. J. K. Partello, commanding, Company C, 4th Infantry, is meeting the problem of personal appearance by having in a prominent location in the lower hallway of the barracks a large full-length mirror. An electric light makes it possible for each man, as he goes out, to observe himself carefully from head to foot. A neatly printed sign calls every man's attention to his uniform in the following words:

CAP—Insignia Polished? Visor Polished? On my head Correctly?
NECKTIE—Adjusted Properly? Spots?
BLOUSE—Buttons Fastened? Spots? Wrinkles Under Belt?
BELT—Polished? Adjusted Properly?
BREECHES—Worn Correctly Over Knees? Pulled Up? Spots?
LEGGINS—Wrapped Correctly? (4 Inches from center of Knee Cap to Top?) Spots?
SHOES—Serviceable? Polished? Laces Serviceable?
Shaven? Finger nails clean? Hair Cut?

The company commander, 2d Lieut. D. J. Kinnee, sent in the above report at the suggestion of the Chief of Infantry.

The Machine gun companies of the 17th Infantry, Col. C. A. Trott, commanding, have completed their firing for this year with the following results:

Company L, Capt. J. R. Boatwright, qualified 100%, with 20 experts, 21 1st class

The Chief of Infantry's Combat Squad from the 11th Infantry
The 2nd Squad of Company E

Top Row, L. to R: 1, Pvt. Watt J. Conley; 2, Pvt. Galbert Profitt; 3, F. J. Deleruyelle; 4, Pvt. H. S. Dunham. Bottom Row, L. to R.: 1, Pvt. Ralph Quinteri; 2, Pvt. Robert Goolsbee; 3, Pvt. Fosey Wiley; 4, Corp. Chas. L. Culver.

gunners, and 6 marksmen; Company D, Capt. J. M. Ferguson, qualified 100%, with 16 experts, 14 1st class gunners, and 18 marksmen.

In the 27th Infantry, Col. W. E. Hunt commanding, Company K had the honor of furnishing the squad for the Chief of Infantry's combat team.

On July 8 the 36th Infantry, Col. I. C. Welborn commanding, celebrated the fourteenth anniversary of its organization. The program was up to the high standard that the regiments of Infantry have set for such events. The regiment had a special cause to be pleased at this time, for it had just received a letter of commendation from the commanding general of the 22d Brigade, on its excellent record in rifle marksmanship for the training year 1929-30.

The 2d Battalion of the 1st Tank Regiment, stationed at Fort Benning, is proud of the results of its tank weapons markmanship record, just completed. The following table shows how well the Tankers did:

	Hq. Company		Company "D"		Company "E"		Company "F"		Battalion	
High score	Pvt. Smith—373		Pvt. McKnight-378		Pvt. Belala—319		Corp. Shivers, G. 370		Pvt. McKnight-378	
Low score	240		241		254		264		240	
	Enl. Men	Officers & Enl. Men	Enl. Men	Officers & Enl. Men	Enl. Men	Officers & Enl. Men	Enl. Men	Officers & Enl. Men	Enl. Men	Officers & Enl. Men
Average score	329.47	329.63	330.76	332.08	291.6	292.2	336.53	336.80	Course A 332.5 Course C 291.6	Course A 332.93 Course C 292.2
Number fired	71	80	84	89	143	148	82	86	380	403
Number of experts	56	63	64	69	100	105	70	73	290	310
Percentage of experts	78.88%	78.75%	76.19%	77.53%	69.93%	70.95%	85.36%	84.88%	76.31%	76.92%
Number of 1st class gunners	11	13	17	17	34	34	12	13	74	77
Number of 2nd class gunners	4	4	3	3	9	9	0	0	16	16
Percentage of 1st class gunners	15.49%	16.25%	20.24%	19.10%	23.77%	22.97%	14.64%	15.12%	19.47%	19.11%
Percentage of 2nd class gunners	5.63%	5%	5.57%	3.37%	6.30%	6.08%	0%	0%	4.22%	3.99%
Number unqualified	0	0	0	0	0	0	0	0	0	0

Required scores	Possible	Expert	1st Class	2nd Class
Course A Co's D, F and Hq. Company	392	330	260	220
Course C Company E	342	290	270	230

National Guard

FEDERAL RECOGNITION

TO BE legally eligible for Federal recognition as an officer in the National Guard, an individual must have been commissioned by the State authorities and assigned to a position included in the federally recognized National Guard of that State.

Under the law, as expressed in Section 74 of the National Defense Act, a person to be granted federal recognition as an officer of the National Guard must come from one of these categories:

1. Officers or enlisted men of the National Guard.
2. Former officers of the Army, Navy, or Marine Corps.
3. Enlisted men and former enlisted men of the Army, Navy, or Marine Corps who have received an honorable discharge therefrom.
4. Graduates of the United States Military or Naval Academies.
5. Graduates of schools, colleges, universities, and officers training camps where they have received military instruction under the supervision of an officer of the Regular Army who certifies their fitness for appointment as commissioned officers.
6. For the technical branches or staff corps and departments, such other civilians as may be specially qualified for duty in them.

In addition, the candidate must pass a physical, mental, and moral examination conducted by a board of officers detailed for the purpose.

A point occasionally overlooked in applications for federal recognition is the fact that the candidate does not come within any of the classes enumerated above. In many such instances he is a former member of the National Guard but federal recognition has long since been withdrawn, and he no longer has that status.

These cases have to be sent back to unit commanders with the suggestion that the candidate be enlisted in the National Guard in order to establish his eligibility. All of this takes time and makes paper work for everybody. It can be avoided if commanders will see that candidates are eligible for recognition when their papers go forward originally.

NATIONAL GUARDSMEN TO THE SERVICE SCHOOLS

PLANS for the attendance of National Guardsmen at the army service schools for the coming year have been worked out in the Militia Bureau. The total attendance will be 290 officers and 130 enlisted men. Some of the allotments are:

OFFICERS

School	*Course*	*Branch*	*Number*
War College	G1 & G3		8
C. & G. S. S.	N. G. & Res. Off.		11
Infantry	Field Off.	Inf.	18
Infantry	Co. Off.	Inf.	92
Tank		Inf.	3

ENLISTED MEN

Infantry		Inf.	50

TRAINING PROGRAMS

TWO training programs received honorable mention in the Notes on Training of the National Guard, which has recently been distributed to the Service from the Militia Bureau. One was the field training program of the 158th Infantry, Arizona National Guard, commanded by Col. Joseph F. Pomeroy, and the other was the armory training program of the 116th Infantry, Virginia National Guard, commanded by Col. Hierome L. Opie.

The field training program of Col. Pomeroy prescribes the training subjects in general terms only, designates the days available to subordinate units for training, and then provides for tactical inspections to determine the degree of proficiency attained. It requires unit commanders to study the training needs of their commands and to plan their schedules in such manner as to insure systematic progress. As an intermediate step, battalion programs are provided for. Based upon the regimental and battalion programs, company schedules are prepared. Each one of these differs from the others, thus showing the initiative and resourcefulness of unit commanders. This type of program and schedule is highly commended.

Colonel Opie's program is distinctly progressive. The salient points are that it lists all the subjects in which every unit of the regiment is to train during the armory training period; sets general objectives to be attained; by means of an inspection calendar, sets dates of inspection for the purpose of determining the progress that is being made; includes an information guide to assist in the training of each subject, with text references; sets a standard of excellence to be attained in each subject; and omits complicating explanations.

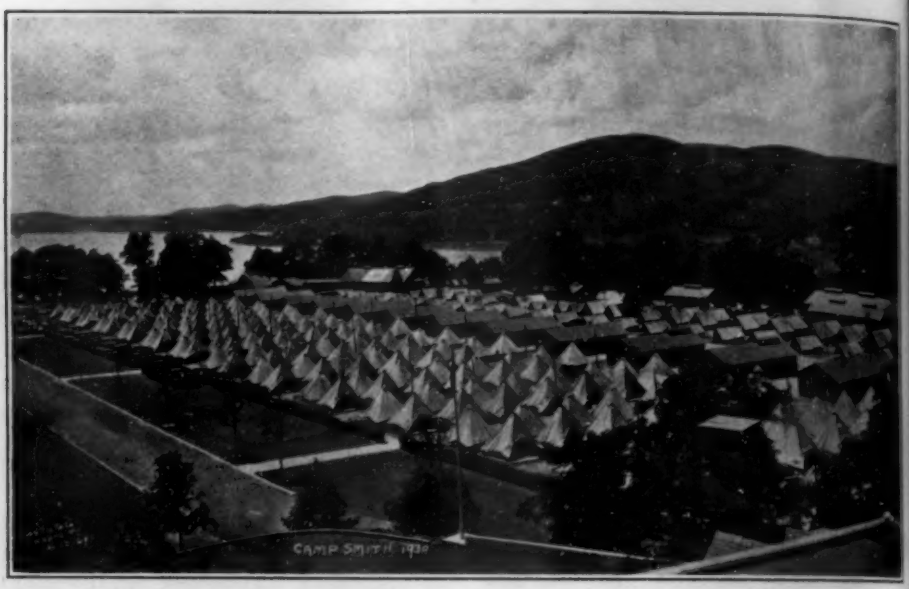
These two programs and the schedules based upon them are models of excellence in their respective fields. They show real progress in the training of the National Guard. When making up training programs, commanders will do well to consider those that this paper describes.

PRIZES FOR EXCELLENCE

CAPT. FRED MILLER, who commands Company C, 143d Infantry, at Beaumont, Texas, believes in prizes as an incentive to excellence in his command. Previous to the 1930 armory inspection he set up an array of them.

An extract from the company bulletin sets forth his ideas on the subject:

1. If the supply room, records, and everything pertaining thereto is satisfactory, the supply sergeant will receive a prize.
2. If the equipment stored in the armory and the general appearance is very satisfactory, the company mechanic will receive a prize.
3. If the orderly room and records are found very satisfactory the company clerk will receive a prize.
4. The best informed noncommissioned officer in the company will receive a prize.
5. The corporal who has the best appearing and best drilled squad will receive a prize.
6. The private or private first class who has the best military bearing will receive a prize.
7. The private or private first class who is best versed in military courtesy will receive a prize.
8. The best dressed private or private first class will receive a prize.
9. If this company is 100 per cent very satisfactory, the company com-



Summer Camp of the New York National Guard—The West Camp

mander will give a banquet at which there will be both quantity and quality.

The company armory is in charge of a noncommissioned officer detailed by roster each week. This gives the men responsibility and builds up leadership. There is a Captain's drill squad in the company, and the competition is becoming so keen that there is danger that one squad will not hold all of the qualified contestants. The company is getting target practice laid by before the field training camp so that it may devote all of its efforts to field training.

Truly this is an up and going organization. We should like to hear of more of them. Let the editor of this department know what you are doing that is out of the ordinary.

NATIONAL GUARD RETIREMENT

A BILL has been introduced in the House which establishes a retired list for National Guard officers and authorizes retirement privileges for those who can qualify under its provisions. The measure is sponsored by Representative McSwain of South Carolina, and has been referred to the Military Committee for consideration and report.

In order to enjoy the benefits contemplated by the bill a National Guard officer must have service and qualifications as follows:

1. He must have 20 years or more honest and faithful service in the National Guard, the major portion of which was as an officer.

2. He must have served through the period of at least one war in which the United States has been engaged. This provision will include the Philippine rebellion and the Boxer rebellion in China, as these are both usually included in the wars of the country when service is to be counted.

3. If not now in the service, he must have received an honorable discharge.

4. He must be at least 50 years of age.

Summer Camp of the New York National Guard—East Camp

5. He must be suffering from disabilities to the extent of at least 30 per cent.

Any person who fulfills these qualifications and requirements is to be placed by the Secretary of War upon a special list designated as the National Guard Officers' Retired List, and when so placed is to receive pay at the rate of $100.00 per month. After arriving at the age of 60 years he is to receive pay at the rate of $150.00 per month, and when he reaches the age of 70 he is to be entitled to pay at the rate of $200.00 per month.

The measure also provides for the administrative process by which officers may establish their eligibility for the benefits under the law. A board of medical officers must pass upon the case and agree unanimously to the degree of disability.

Any officer who is now on the emergency officers' retired list or is receiving a pension from the Government, and who comes under the provisions of this proposed law is to be permitted to elect the category in which he desires to be placed.

MEXICAN BORDER MEDAL

A NATIONAL GUARDSMAN was a member of an organization which was called into Federal Service in 1916 for duty on the Mexican border. He responded to the call on June 19, 1916; subscribed to the federal oath of enlistment on that date; and received a few days' federal pay.

Prior to July 29, 1916, when his unit was mustered into the federal service, this soldier was discharged on account of dependant relatives. He did not serve on the border.

The soldier made application for the Mexican Border Service Medal. His request was denied after the case was examined by the Judge Advocate General of the Army, who held that the soldier must have been mustered into

the service of the United States or have served in the field within the meaning of the law to entitle him to the service medal in question. The mere fact that the man responded to the call would not entitle him to the medal.

A CHAMBER OF COMMERCE AND THE NATIONAL GUARD

WHEN the members of the 143rd Infantry left their home station at Houston, Texas, for the field training camp at Palacios, each officer and enlisted man was presented with a card of greeting from the Military Affairs Committee of the Houston Chamber of Commerce. The text was:

On your departure from Houston for the period of the annual field training your fellow citizens take this opportunity to bid you "Good-bye and Good Luck!"

It is desired to commend you for the spirit and patriotism which has led you in days of peace to devote time and energy in perfecting yourself in military training and discipline. We believe you will derive much satisfaction in applying the training at home to the problems you will encounter in field work. We hope you will return to your home city with renewed physical vigor and fresh inspiration.

Houston is proud of its National Guard organizations and of each individual in the ranks. Our city will be judged by the showing each man makes at the encampments, but we are confident that the city's good name is in safe hands.

The largest city in Texas should produce the State's best soldiers. We believe it has. Work hard—play hard! We know that this city will be as proud of you on your return as it is now at the moment of your departure.

Such words of encouragement to a National Guardsman will have far reaching effect. They will give him a feeling of great interest in the community which has shown an interest in him. This is one of the benefits of having a military affairs committee in the organization of a Chamber of Commerce.

PERFECT RECORD

DURANT, a town of 7500 inhabitants in Oklahoma, supports five units of the Oklahoma National Guard, and, judging from the "Very Satisfactory" rating that each of them received at the armory inspection this year, does the job right well. The units included in this signal achievement are Company E, 180th Infantry, Capt. Don E. Atkinson; Howitzer Company, 180th Infantry, Capt. John A. MacDonald; Band, 180th Infantry, Warrant Officer Arvo W. Hautula; Medical Detachment, 179th Infantry, Maj. J. F. Colwick; and Headquarters Company, 90th Infantry Brigade, Capt. Ralph Ownby.

A MODEL COMPANY

"A MODEL National Guard Company, in every respect. It is well trained, well disciplined, well officered, with a superior degree of esprit and leadership." This is what the inspecting officer added to his rating of "Very Satisfactory" in summing up his impression of the 29th Military Police Company, District of Columbia National Guard. The spirit of this fine outfit may be appreciated when it is known that every man in the company has his own tailor-made serge roll-collar uniform, provided from his private funds. Capt. William T. Roy commands this excellent organization.

Reserves

The Reserve Regiment With the C. M. T. C.

An Experiment that has Worked

LIEUT. COL. LEROY F. SMITH, 363d Infantry

ONE year ago, the writer made a brief report in the INFANTRY JOURNAL upon the experiment, just then concluded, of utilizing Reserve regiments for C. M. T. C. training; and he expressed his satisfaction with the results obtained in that initial try-out.

The 363d Infantry has now (July 16, 1930) just completed its second yearly 14-day active duty training period with the C. M. T. C. at Camp John P. Pryor, Monterey, California; and it is believed that a report upon this second experience will be of interest and profit to the Service.

Last year, our regiment took over the command of the C. M. T. camp for the *closing 14 days*. The opening two weeks had been carried on under a sister regiment of the 91st Reserve Division, the 361st. The hiatus of a few days between the administration of these two regiments was filled in by the officers of the 30th U. S. Infantry, who with a battalion of troops, were in camp throughout the entire period and maintained an advisory-monitorial relationship.

All three units agree that that plan, which subjected the trainees of the C. M. T. C. to three sets of leadership in their 30-day tour, was attended with many problems, some unsolvable. *In spite of these difficulties, the policy of Reserve Training of and with the C. M. T. C. proved its fundamental worthiness;* and the War Department, as a result of the 1929 experience, wisely determined to carry on the experiment, with modifications, in the 1930 camps.

THE 363D INFANTRY CONDUCTS A MOBILIZATION

The regiment with 71 officer personnel only, reported for duty at Camp John P. Pryor, one day in advance of the day set for arrival of the 1200 C. M. T. C. trainees. For three months previous, the officers who had been selected for this tour were assembled in Fresno and in Los Angeles, in bi-weekly troop schools of intensive training, in mobilization, processing, the school of the soldier, squad, platoon and higher units, and in ceremonies, extended order, and various other phases of garrison and field schedules.

Each officer had been assigned to his unit before arrival at camp. He had a definite and interesting task confronting him, and he had been "boning up" on that task in concert with the officers with whom he was to serve.

Countless details had been worked out by the unit instructor Capt. L. C. Dill, Infantry, at Fresno, and by Capt. John D. Chambliss, Infantry, at Los Angeles, the centers of population of the regimental personnel. There is much of import in this statement. The high success of the 1930 camp was very markedly the result of the outstanding efforts of these regular officers.

When the young men of the C. M. T. C. arrived at Monterey they were transported by trucks to the regimental

area and immediately parcelled out, *by rosters already prepared*, to their companies, an officer from which was waiting to receive and conduct them. From that first moment, they began to absorb company spirit, an invaluable factor in any training, but a vitally necessary factor in the short, intensive, various schedule of the C. M. T. C.

THE OFFICERS HAVE WAR-TIME PRACTICE

If the trainees profited by this arrangement, no less also did the officers. The young subalterns, under the guidance of veteran company and battalion commanders, conducted a war-time reception, examination, clothing and equipment issue, shoe-fitting, billeting, and organization, with practically all war-time problems to solve. The processing was conceded by all observers to be unusually smooth, rapid, and successful in C. M. T. C. experience; the only hitch being caused by wrong-size-tags on the rehabilitated government clothing issued, necessitating a large number of exchanges.

TRAINING SCHEDULE STARTS PROMPTLY

The organization of companies and platoons thus facilitated, the training began on the second day and ran smoothly throughout the 363d Infantry's tour.

On Friday, July 11, the seventh day of the trainees in camp, and their fifth day of drill and their third day with arms, a regimental review and inspection was held for the commanding general of the Ninth Corps Area and the approbation of General Hines was most pleasurably cordial.

THE REGULARS TAKE OVER

The officers of the 363d stood relieved from duty on Wednesday, July 16. Their average distance from home was 275 miles; they therefore turned the troops over to the personnel of the 30th U. S. Infantry on July 15. In each company of the provisional C. M. T. C. regiment, a 30th Infantry officer had acted as supply officer and in a liaison capacity, and the enlisted cadres from the 30th similarly had become familiar with their troops. This is written on the day of relief from duty of the 363d; but it is by no means an airy prophecy to state that the C. M. T. camp continued under this splendid arrangement with a minimum of transplanting back-set.

NET IMPRESSIONS

What is the answer? Before we arrive at that, we must ask this, *what* is the *problem?* And this is the problem.

(a). To train the young citizens of the C. M. T. C. for the universal building of citizenship and national defense fitness, and for the largest possible building of a group of young leaders to the point of capable noncommissioned and commissioned rank in the U. S. Reserve;

(b). To secure and to maintain the highest possible individual and collective military efficiency, esprit, and mobilization-readiness of the personnel of the Organized Reserve; and

(c). To secure the closest *possible constant liaison, sympathy, teamwork* and *coordination for National Defense* between the *Reserves,* the *civilians* taking training—and the *Regular establishment.*

That is our job. Does this plan lead toward a high measure of its accomplishment? The answer is unqualifiedly and emphatically, *Yes.* The relationships among these three groups at Monterey approach very, very close to the ideal. The commissioned and enlisted personnel of the 30th U. S. Infantry displayed a most skillful discernment in their conduct of their

inherently delicate task. They know and have confidence in the 363d Infantry; they know that the 363d Infantry knows, has faith in, and cordially welcomes advice and help from the 30th. And, to make the triad complete, the young men of the C. M. T. C., from Basics to Blues, entered with delightful comradeship into the teamwork. A consensus of the C. M. T. C. opinion would leave no doubt in the mind of any one as to the success of this plan.

SOME DO'S AND SOME DON'TS

The 363d Reserve Infantry has now had the distinction of closing one camp and of opening the next. It feels, therefore, somewhat competent to make appraisals in this matter. Those that follow are the consensus of the officers of the regiment who have served both of these interesting and profitable tours.

1. There should be as little changing of C. M. T. C. training regiments, Reserve or Regular, as possible. The C. M. T. C. is a vital part of our national-obligation-esprit system; it should have the administration of units and officers who are both *trained* and *sympathetic*.

2. Prior instruction for this duty is highly necessary. It is a task of peculiar delicacy, not quite analogous to any other military operation.

3. The Reserve regimental commander should name every officer detailed for this tour. Thus, and thus only, can he build and maintain a team.

4. The following officer personnel are deemed the minimum necessary for a proper working of the regiment. Furthermore, this list contains no officer who will not receive a training vitally necessary for an organization prepared to take the field quickly.

REGIMENTAL HEADQUARTERS	
Commdg. Officer	1
Regtl. Exec. Off.	1
S-1, S-2, S-3, S-4	4
3 Medical (incl. 1 Dental)	3
Chaplain	1
Total	10
BATTALION HEADQUARTERS	
Bn. Cmndrs.	3
Bn. Exec. Offs.	3
Bn. Adjs.	3
Bn. Sup. Offs.	3
Total	12
SIX RIFLE COMPANIES	
Capts.	6
Seconds in Command	6
Plat. Leaders	18
Total	30
TWO MACHINE GUN COMPANIES	
Capts.	2
Seconds in Command	2
Plat. Leaders	4
Total	8
ONE HOWITZER PLATOON	
Capt.	1
Second in Command	1
Plat. Leader	1
Total	3
For Regiment, Grand Total	63

NOTES ON PERSONNEL

The four supply officers obtain a very vitally important experience not obtainable elsewhere in peace time.

If a greater number of Reserve officers is to be trained, the excess should be detailed from officers already assigned to the regiment; and any excess officers so detailed, whether regimental officers or officers attached for this training period, should be informed of the fact that their training will be in the role of supernumerary observers, with every facility for training which shall be found possible *without interferring with the above outlined regimental set-up.*

5. *It will be possible to rotate this*

duty among the regiments of a Reserve division, without great peril to the C. M. T. C. This is perhaps the most emphatic pronouncement of the officers who have been all the way through this mill at Monterey.

6. The training of the regiment in the higher phases of military instruction is *not impeded* by continuing the regiment on this training from year to year. *On the contrary, the general training of the 363d has* been stimulated by this anticipated special assignment. The regiment has one of the highest known percentages of troop school attendance and correspondence course completion; and it is foremost in those things which make for esprit. For example, it has instituted an Army Officers' Mess in one of Los Angeles' largest restaurants, which has elicited the interest and participation at their weekly luncheons and monthly balls, of hundreds of officers of all grades, branches, arms, and components.

7. The pinnacle of success of the C. M. T. C. will be reached not until the Reserve regiment that conducts the training has been accorded a *30-day detail to duty.* The number of regiments throughout the United States which would thus be given the double amount of active duty is so small that the monetary consideration should not be permitted to weigh against the manifest and extraordinary benefit to the C. M. T. C. project. When this is found quite impossible, then an officer of the Regular regiment which is to take over the training should be attached to each company for the purpose of becoming thoroughly familiar with schedules and trainees.

8. The *unequivocal responsibility* for the training of the C. M. T. C. should be *laid upon the Reserve regimental commander.* This emphasized recommendation is based upon the happy experience of the camp under discussion. The commanding officer of the 30th U. S. Infantry wholeheartedly placed this responsibility upon the commanding officer of the 363d Infantry, and assumed the most helpful role of advisor. There was no slightest overlapping of command.

9. Under this plan of C. M. T. C. training, the training camps idea is growing in popularity. This year the Monterey camp quota was oversubscribed 30 days before camp; and alternates and substitutes were trying in large numbers to "crash the gate."

Further, when the plan of continuing utilization of a regiment is maintained, the personnel of that regiment are found to be keenly interested in the two-way activity of *keeping in touch* with the C. M. T. C. trainees between camps, and of carrying a considerable proportion of the job of *recruiting for camp.*

10. The regimental mess at Camp John P. Pryor was an outstanding factor in the success of this enterprise. It was most efficiently conducted for the regiment by a mess officer from the 30th U. S. Infantry and a most capable Regular cadre under the command of a warrant officer. This plan should be followed in all cases of this type of duty.

11. Our job is to build citizenship—citizenship for peace, citizenship with some measure of capability for service, —if war should come. In this Republic no group of citizens may "pass this buck" to any other group. It is a common obligation. Three great groups, professional soldier, avoca-

tional soldier, and junior citizen, have given a more than passable demonstration of triune attack upon this common task. The success of the experiment justifies its being promoted to the grade of a fixed policy.

Col. Paul Debevoise, commanding the 312th Infantry, issued a very useful memorandum to all officers of his regiment who were designated for active duty at Camp Dix. The memorandum, which issued on July 17, is reproduced below with the thought that it may contain ideas that will be of use to other Reserve regimental commanders.

Special: BRING ALL INCLOSED ORDERS WITH YOU. NO OTHERS ARE AVAILABLE. These are sent now to orient you on training and camp routine and should be carefully read and preserved.

1. The following additional information is furnished those officers who have been ordered to active duty at Camp Dix, N. J., for the 14 day period 1-14 August 1930. Further orders will be issued upon arrival at Camp Dix, or as necessary.

2. The Certificate of Service for Longevity Pay from Finance Officer, Second Corps Area, Governors Island, N. Y., should be in the hands of each officer on reporting for active duty.

3. The Infantry Journal, 1115-17th St., SW, Washington, D. C., offers for sale a useful compilation of Training Regulations entitled "Infantry Drill Regulations" (Vol. II, Basic Field Manual). Price in flexible waterproof binding $1.80 postpaid. If ten (10) or more copies are ordered a discount of 25%, f. o. b. is given. Size of book is 7-½ x 4-½ x ½ inches.

4. *Transportation, Rail*: Limited train service from New York and Newark via Pennsylvania Railroad is available to PEMBERTON (5 miles from Camp Dix) and to WRIGHTSTOWN (Camp Dix). Change to another train or to a motor railway coach is made at TRENTON. A motor coach leaves TRENTON (EST) at 8:30 A. M. and at 3:30 and 7:30 P. M., arriving WRIGHTSTOWN 35 minutes later.

The above is based upon latest available information. Due to the limited rail service available, officers going by rail should consult Pennsylvania Railroad ticket offices for rates and train schedules.

Motor Bus: For detailed information as to time of departure of through motor busses, New York and Newark direct to Camp Dix, call Public Service Co-ordinated Transport, Telephone Market 2-7000 (Mr. Whitman). Baggage is ordinarily limited to suit cases or hand baggage of similar size. Foot lockers may, however, be taken on "chartered busses." Arrangements for chartered busses for special parties direct to C. M. T. Camp can be made by calling as above.

Baggage: To avoid delay it is suggested that each officer take his baggage with him, whether traveling by train, motor bus, or automobile. Expressing of baggage is particularly not recommended. In view of delays frequently resulting from checking baggage, it is recommended that hand baggage be used where practicable.

5. *Arrival*: Plans should be made that will insure arrival at C. M. T. Camp, Camp Dix, not later than 2:00

P. M. on 1 August. Upon arrival, officers will report without delay at Headquaters 18th Infantry.

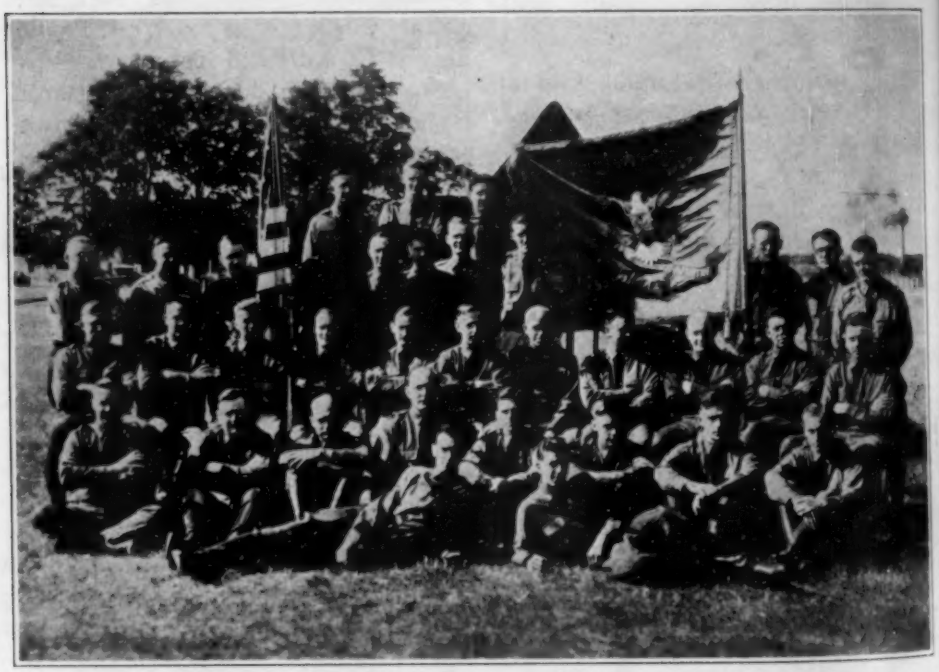
6. *Quarters:* Quarters will be assigned in the Post Exchange Building and in tents near organizations, in C. M. T. C. area, adjacent to 18th Infantry.

7. *Private Automobiles*: Automobiles will be parked in the open, no garage space being available in C. M. T. C. area.

8. *Uniform*: The uniform to be worn will be governed by uniform regulations, or as prescribed by Camp Commander. No civilian clothing will be worn in camp without authority of Commanding Officer, 312 Infantry. Service boots may be worn by field officers.

Late in July twenty-two members of the 403d Infantry joined the Infantry Association and subscribed to the INFANTRY JOURNAL at one time. Some others joined separately. Col. F. H. Burr, Infantry, the Regular Army executive, was evidently able to convince the officers of the 403d that the Association and the JOURNAL are useful to Reserve Officers. Such has long been our opinion, and we hope that other Reserve regiments will follow the wholesome example of the 403d.

The Reserve Officers at Phoenix, Arizona, have fired pistols every Sunday since November, 1929, on the National Guard rifle range in Papago Park. The continual firing in the same old way seemed about to break up the



The Officers of the 338th Infantry, Col. G. E. Cronin Commanding, at Camp on July 15, 1930

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shoots, when Capt. Roy T. Richards, Engineer Reserve, and a few of the more versatile thinkers, decided to "pep up" the shoots a bit by providing some novel features as well as by introducing the elements with which the officers would come into contact in actual service.

Having first to provide suitable target holders for the silhouette targets, they evolved an improvisation. An ordinary pipe was used, sharpened at the bottom, and two pieces of steel were welded to the top. These pieces of steel were mounted at right angles and were bent upwards about eight inches from the pipe. One, extending directly to the rear, was used to hold a small spring attached to the target stick, and the other, extending directly to the left, was used to limit the travel of the target, which operated in the usual manner. Since the ground at the park is quite hard, two cross-pieces of steel were fixed about six inches from the ground surface and a sharpened projection at each end offered the necessary stability when embedded in a pile of rock. An old piece of wire was then attached to the target cross-piece and extended obliquely to the right.

Three targets were mounted and many unusual situations were produced, since the shooter never knew which or how many targets would be at his disposal. Skirmish runs were made, firings were conducted from all positions, and shooting from the hip was developed to an exact science.

Captain Richards claims for his idea that one man can operate as many as ten targets, that the conditions of actual service can be well simulated, that interest is maintained, that the timing of the targets can be accurately controlled, that the necessary material can be provided by any blacksmith.

The Chief of Infantry's Combat Squad from the 27th Infantry

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Books

THE DECISIVE WARS OF HISTORY—A STUDY IN STRATEGY, by Captain B. H. Liddell Hart. Little, Brown and Company, Boston. $3.60.

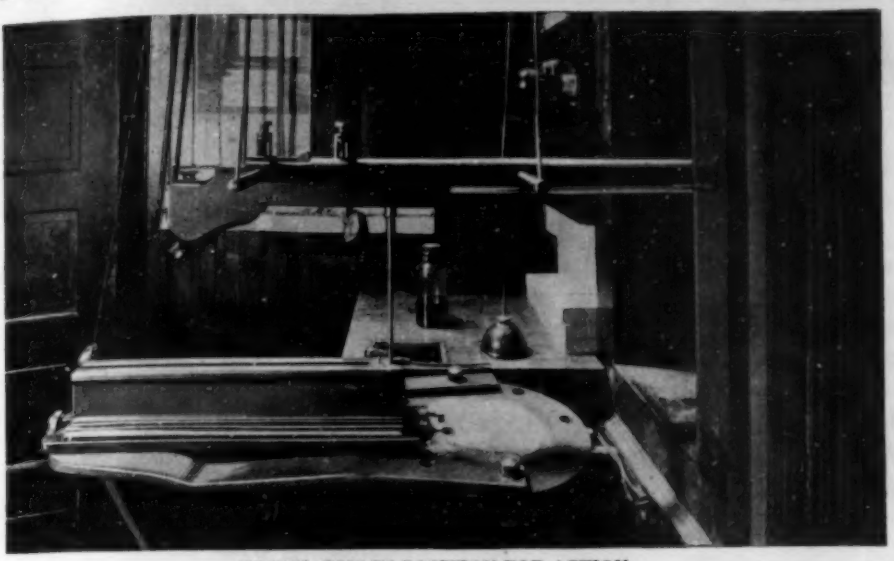
In the first chapter of this book, the author charts the course that he proposes to follow:

"The foundation of any theory of war should be as broad as possible. An intensive study of one campaign, unless based on an extensive knowledge of the whole history of war, is as likely to lead us into pitfalls as on to the peaks of military achievement.—This book, like the thesis that emerges from it, is the product of an 'extensive' examination. It might, indeed, be termed the compound effect of certain causes—these being connected with my task as military editor of the Encyclopaedia Britannica. For while I had previously delved into various periods of military history according to my inclination, this task compelled a general survey of all, often against my inclination. And a surveyor, even a tourist, if you will, has at least a better perspective and can at least take in the general lay of the land, where the miner knows only his seam. During this survey one impression grew ever stronger—that throughout the ages decisive results in war have only been reached when the approach has been indirect. In other words, that in strategy the longest way round is the shortest way there."

Part I of the book sticks to the course thus charted, and presents a series of studies that deal with the strategy of decisive wars of ancient and modern times. The author has selected his material with consumate skill, and has developed it in a manner that compels admiration. He strips away much of the confusing detail, subordinates the transient effect of new weapons, and dwells upon the primary factors that have enabled the great captains in all ages to conduct decisive operations. Though it may appear ungracious, one cannot help wishing that the field had been extended to include lessons from the military history of China. However, we are deeply indebted to Captain Hart for what he has given us, even though we may note some mental reservations in connection with the concluding chapter in which he proceeds "to construct on the fresh foundations a new dwelling house for strategic thought." No military student can read this survey of some twenty-seven wars, embracing more than 240 campaigns, without acquiring valuable ideas.

Part II, about one-third of the book, deals with the World War of 1914-1918. This war bulks large in our current interests; but in a book that purports to survey a major portion of the decisive wars of history, the events of 1914-1918 hardly deserve so much of the available space. American readers will be interested to note the rather curt dismissal of the Meuse-Argonne offensive—"The American attack in the Meuse-Argonne had begun on Sept. 26, but had come practically to a standstill by the 28th." Thus in a single

No. 5 OF A SERIES OF TALKS ON AMMUNITION QUALITY



RECOIL GUN IN POSITION FOR ACTION

Recoil

THE ideal shotgun powder would be that which gave the shot charge the highest velocity and killing power without any recoil. Unfortunately this ideal can never be fulfilled because it would contradict a physical law. Sir Isaac Newton's Third Law of Motion explains Recoil:

"Action and reaction are equal and opposite."

Expressing this in a simplified formula:

WEIGHT OF THE SHOT *times* VELOCITY OF THE SHOT = WEIGHT OF THE GUN *times* RECOIL VELOCITY OF THE GUN

It can be seen from this that if the weight of the shot charge and the weight of the gun are kept the same, then any increase in the velocity of the shot has to be accompanied by an increase in the Recoil Velocity. It can also be understood that a shotgun load which appears to have a lighter recoil must necessarily have a lower muzzle velocity than a shotgun load which appears to have a heavier recoil.

The Recoil Velocity can be very readily calculated by transposing the equation:

$$\textit{Recoil Velocity of Gun} = \frac{\text{WEIGHT OF SHOT CHARGE } \textit{times} \text{ VELOCITY OF SHOT CHARGE}}{\text{WEIGHT OF THE GUN}}$$

Rather than make extensive calculations, however, ballistic experts have developed a special apparatus that actually measures the recoil. This apparatus is called a pendulum gun and is illustrated in the accompanying photograph. The gun weighs 50 pounds and is freely suspended from crossed wires 5 feet long. The pointer under the gun pushes back a small indicator as it recoils. Thus is measured the exact distance the gun kicks back, and an additional control is exercised to assure the shooter's comfort as well as safety.

Du Pont powders are used by all of the principal ammunition manufacturers. They have selected du Pont powder because their ballistic qualities contribute so largely to the superiority of the ammunition and the consequent success of its users. To maintain these standards of excellence, the ammunition companies will continue to load those powders ensuring the best ammunition possible for a specified purpose.

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sentence the author disposes of the only "indirect approach" that the Allies developed successfully on the Western Front. Part II lacks the nice appreciation of relative values that marks the earlier passages of the book.

"The Decisive Wars of History" is a book that should appeal strongly to officers of our service. The subject is one of absorbing interest, and the author's style, though marred by occasional flippancies, is generally pleasing. Whether we agree with Captain Hart's conclusions or not, his thoughts are stimulating.

Ⓘ

HINDENBURG, The Man and The Legend, by Margaret Goldsmith and Frederick Voigt. Wm. Morrow & Co., New York, 1930. 293 pp. $3.50.

A biographical sketch of Marshal Hindenburg which is particularly concerned with the Hindenburg-Ludendorff team. The impression left by this book is that Ludendorff was the Commander and Hindenburg the staff officer. On page 96 we read:

In his Memoirs he (Ludendorff) always writes: "I proposed this or that maneuver,' and Hindenburg says nothing to the contrary. Ludendorff was the real commander of the Eighth Army. Hindenburg seems to have accepted everything he suggested. It is not obvious why Hindenburg was appointed at all. * * * He (Ludendorff) takes all the credit he can for himself, and grudges it to anyone else. Hindenburg was free from pettiness.

The authors lose sight of the fact that a chief of staff exercises no command functions. It is his rôle to suggest or propose, leaving the decision to the commander. They deduce from Ludendorff's Memoirs that he was the whole show, and in the same paragraph accuse him of hogging the credit.

In spite of certain incongruities and illogical deductions, *Hindenburg* is an interesting and sympathetic sketch of Germany's president.

The picture of conditions at German GHQ in the summer and fall of 1918 is illuminating.

Hindenburg is well worth reading and rereading.

Ⓘ

SKYWAYS: A BOOK ON MODERN AERONAUTICS, By General William Mitchell. The J. B. Lippincott Company, Philadelphia, $3.00.

General Mitchell has written a most interesting book for the layman in aeronautics. In a clear and entertaining style he briefly traces the evolution of man's flying from the most ancient attempts down to our present modern "air liners"—and, as one might expect from the author, he even hazards a guess into the future.

The chapters are arranged logically, and each chapter is practically complete in itself, so that after reading the book one is able to pick it up again and read on a certain subject, such as "Engines," without having to read extra pages to become oriented. There are chapters on learning to fly, the kind of men to make into pilots, weather, instruments, safety devices, maps, airships, aeronautical law. In his discussion of flying fields and airways, and commercial aviation, the author presents some most interesting views.

When one reads the chapters on military aviation, the use of aircraft in war, and aviation of the future, of course, the argument starts. However, whether or not the reader agrees with the author, one has to admit that he has made a most logical case for his

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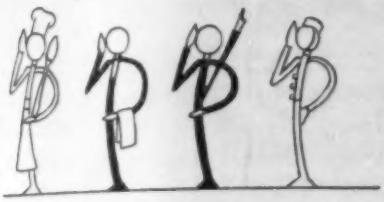

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side—if all his presumptions and guesses are taken as correct. His views on that subject are very well known anyway, and their inclusion in "Skyways" is practically a repetition.

The book is recommended to persons who want to learn about aeronautics and its problems. They will find it instructive and it will give them at least talking knowledge of the subject. Army officers will find in it a direct challenge to do some thinking about a matter that will certainly be of much concern to them sooner or later.

①

THE UNKNOWN SOLDIER, by Vernon Bartlett. F. A. Stokes Co., New York, 1930. 329 pp. $2.00.

The book does not live up to the title. Published in England under the title "No Man's Land," it is the story of the reactions of an English boy who lived a short time in France and Germany, and volunteered in 1914. After a sketchy background covering his life, the hero is found in a shell hole in no man's land.

The author, a collaborator in "Journey's End," skillfully sets the stage so as to make his book another "book to end war." A change in orders calling off a raid gets to the artillery but fails to reach the infantry, and an infantry raiding detachment goes over the top without its artillery support. The results are costly. The reader is made aware that human life is wasted through the incompetence and mismanagement of higher-ups; a similar device was used in Journey's End.

The hero, mortally wounded, lies all day in the bottom of a crater and reviews his life.

The book tells nothing new about war and has a leisurely sort of interest.

①

CAPTURED, by Lieutenant Ferdinand Huszti Horvath, late of the Austrian Army. Dodd, Mead and Company. 1930. $2.50.

Lieutenant Horvath belonged to the Regiment of the Innsbruck Kaiserjaegers. He had active service on the Eastern Front from the beginning of the war until the Spring of 1915, when he and his entire company were captured by the Russians. In the winter 1917-18 he managed to make his escape from a prison camp in western Siberia and, taking advantage of the disorder and confusion of the Russian Revolution, traveled across Russia to Sweden. From Sweden he was sent through Germany to home, where he spent the remainder of the war drilling recruits or on sick leave.

The book is not a treatise on tactics, nor is it propaganda for or against anything. It is simply a straightforward story of an Austrian lieutenant who was a prisoner of war. He tells of all the filth, lice, poor food, and brutality of the Russian guards. He also tells how effective money is in alleviating some of the hardships of captive life. He is perfectly fair, too, and tells of a few pleasant experiences he encountered, notably his love affair with a beautiful Russian lady.

Recommended for a few evenings of most interesting reading.

①

GENERALS DIE IN BED, by Charles Yale Harrison. Wm. Morrow & Co., New York, 1930. 269 pp. $2.50.

The author enlisted at the age of 18 in the 244th Battalion of the Canadian

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Expeditionary Force. His book is the usual chronicle of war as the enlisted man sees it. The discomforts, the filth, the lice and the dangers are played up to the nth degree. Officers come in for the expected "panning."

The book contains two interesting, eye-witnessed, detailed descriptions—one, the looting of Arras in the spring of 1918, and the other, the wholesale slaughter of unarmed Germans on August 8, 1918, at Amiens. The publishers state they have a signed statement from the author that he can vouch from personal experience for the amazing events mentioned above.

Well-written, interesting, and worth reading.

Ⓘ

GREEN ICE, by Raoul Whitfield. A. A. Knopf, New York, 1930. 282 pp. $2.00.

The story of a young man who, having money, comes into the clutches of a "gold digger" and then serves two years in Sing Sing through his chivalry in taking blame for her driving through a safety zone and killing two people. In prison he becomes acquainted with minor crooks who are pawns of the men higher up.

Upon leaving prison he starts out to locate the greater crooks and things begin to happen at an alarming rate of speed.

Written with a good admixture of crook's cant, the story carries the reader from one exciting encounter to another and finally to a surprising finish.

Ⓘ

CONTRACT BIDDING, by George Reith. The John Day Company, New York, 1930. 37 pages, $2.00.

"Contract Bidding" embodies the rules of contract bridge as played by the Knickerbocker Bridge Club of New York City. It is well called a "handy pocket edition," as the volume is a tiny flat one with the rules of bridge succinctly stated.

Ⓘ

SONGS MY MOTHER NEVER TAUGHT ME. According to John J. Niles and Douglas S. Moore, and illustrated by A. A. Wallgren. The Macaulay Co., New York, 1929, 223 pp. $2.50.

As indicated by the title, this almost unexpurgated collection of picturesque ballads, chanties, ribald lyrics, and negro war songs of the A. E. F. is rather frank in its sentiments.

Over There, Tipperary, Pack up Your Troubles, and songs of that type, are conspicuously absent in this collection.

Many of the comments are informative, some amusing, a few absurd. For example the song "Tell me now" carries the idea of "I don't know why I went to war or what dese folks are fightin' for." The text reads, "It is a revealing song. It asks the War Department some very embarrassing questions, which to date are unanswered." As any school boy knows, the War Department didn't declare war against Germany. The authors show that they know more about songs and music than about governmental procedure.

Ⓘ

THE FACTS OF LIFE, a Book of Brighter Biography, by H. W. Hanemann. Farrar & Rinehart, New York, 1930. 276 pp. $2.00.

Mr. Hanemann has his fun with some of our modern writers. Hysterical

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rather than historical, "The Facts of Life" contains among others:

Hip! Hip! Horatio! Count Luckner Sea-Devils the Truth from Lord Nelson and Lady Hamilton.

A Farewell to Josephine's Arms, The Hemingway of All Flesh.

A Kubla Great Boys, Richard Halleburton Plays Polo.

Oh, Ptolemy Pretty Maiden, Cleopatra and Peggy Joyce are sisters under the skin.

Witty, Mr. Hanemann has a fine balance of burlesque and parody. His "The Facts of Life" is screamingly funny.

MATA HARI, Courtesan and Spy, by Major Thomas Coulson, O. B. E. Harpers, New York, 1930. 312 pp.

Major Coulson has cleared away many of the legends and myths which were associated with the most notorious of the woman spies of Germany. Clever, intelligent, without any sort of moral restraint, and of great physical charm, she was a most valuable agent of the secret service. Her courage when faced with trial and death challenge our admiration.

The author dissects her character in the manner of a great surgeon before a clinic.

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